User's Manual

ADSL2+ Wireless 11n Router

Index

FCC Part 68 3
FCC Part 15 4
Chapter 1 Introduction 4
1.1 Overview 5
1.2 Features 5
1.3 System Requirements 6
Chapter 2 Installation 7
2.1 Checklist 7
2.2 The Front LEDs 8
2.3 The Rear Ports 8
2.4 The Bottom Port 9
2.5 Hardware installation 10
Chapter 3 Configuration 12
3.1 Determine your connection settings 12
3.2 Connecting the ADSL Router to your network 12
3.3 Configuring with Web Browser 12
3.3.1 Hostname Setting 15
3.3.2 System Time 16
3.3.3 Admin Setting 17
3.3.4 Firmware Update 18
3.3.5 System Log 19
3.3.6 System Reset 20
3.4.1 ADSL Status 21
3.4.2 ADSL PHY Configuration 22
3.4.3 VC Configuration 23
3.5.1 WAN Configuration 24
3.5.2 WAN Status 26
3.5.3 DNS 27
3.5.4 DDNS 28
3.6.1 LAN Configuration 29
3.6.2 DHCP Client List 30
3.6.3 STB Bridge 31
3.7.1 Wireless Setting 32
3.7.2 Wireless Security 33
3.8.1 Firewall Setting 34
3.8.2 DoS Options 35

3.8.3 Packet Filtering 36
3.8.4 MAC Control 37
3.9.1 NAT Setting 38
3.9.2 Virtual Server 39
3.9.3 Port Mapping 40
3.9.4 DMZ Setting 41
3.9.5 UPNP Setting 42
3.9.6 Application Server Setting 43
3.10.1 Static Routing 44
3.10.2 Dynamic Routing 45
3.10.3 Routing Table 46
3.11.1 System Status 47
3.12.1 TCP/IP Settings for Windows Operating System 48
Appendix A Glossary 55
Appendix B Cabling / Connection 62

FCC Part 68

This equipment complies with Part 68 of the FCC Rules. On the bottom of this equipment is a label that contains the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. You must provide this information to the telephone company upon request.

The REN is useful to determine the quantity of devices you may connect to the telephone line and still have those entire devices ring when your number is called. In most, but not all areas, the sum of the REN of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your calling area.

If the modem causes harm to the telephone network, the telephone company may discontinue your service temporarily.
If possible, they will notify you in advance. But if advance notice isn't practical, you will be notified as soon as possible.
You will be advised of your right to file a complaint with the FCC.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper operation of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with this modem, please contact your dealer for repair/warranty information. The telephone company may ask you to disconnect this equipment from the network until the problem has been corrected or you are sure that the equipment is not malfunctioning.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

FCC Part 15

The modem generates and uses radio frequency energy. If it is not installed and used properly in strict accordance with the user's manual, it may cause interference with radio and television reception. The modem has been tested and found to comply with the limits for Class B computing devices in accordance with the specifications in Subpart B, Part 15 of the FCC regulations. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. FCC regulations require that shielded interface cables be used with your modem.

If interference does occur, we suggest the following measures be taken to rectify the problem:

1) Move the receiving antenna.

2) Move the modem away from the radio or TV.

3) Plug the modem into a different electrical outlet.

4) Discuss the problem with a qualified radio / TV technician.

CAUTION:

Changes or modifications not expressly approved by the party responsible for compliance to the FCC Rules could void the user's authority to operate this equipment.

Cable connections:

All equipment connected to this modem must use shielded cable as the interconnection means.

Notes:

Operation is subject to the following two conditions:

1) This device may not cause harmful interference, and

2) This device must accept any interference received including interference that may cause undesired operation.

Chapter 1 Introduction

The ADSL2+ 11n Router provides home connectivity to an ADSL service provider network over an ADSL/Asynchronous Transfer Mode (ATM) physical layer. The router can run upstream maximum transmission rates of 2Mbps and downstream maximum transmission rates of 24Mbps.. Four ports switch is provided for connection to an Ethernet LAN or Ethernet-equipped PC, and this router is easy to install and to configure. Integrated with IEEE 802.11n wireless feature, user can easy to link to the router via wireless-G or 11n client.

1.1 Overview

The Infineon Amazon Single-Chip ADSL2+ 11n Router is optimized to address the growing demand for high-speed Internet access, and it does so as a single, highly-integrated and cost-effective solution.

1.2 Features

- ADSL2/2+ Compliance
  - Compliant with ADSL standards
    Full-rate ANSI.413 Issue 2 , ITU G.dmt (G.992.1) , G.dmt bis (G.992.3) and G.adslplus(G.992.5) standards Splitter less ITU G.lite (G.992.2) specification Annex A (ADSL over POTS) and Annex B (ADSL over ISDN), compliant to ETSI TS 101 388
  - DMT modulation and demodulation
  - Full-rate adaptive modem
    Maximum downstream rate of 24 Mbps
    Maximum upstream rate of 2 Mbps
  - Tone detection for low power mode
  - Supports splitter less ADSL implementation
  - Interoperable with all major DSLAM equipment
- ATM Protocols
  - WAN mode support: PPP over ATM (RFC 2364) and PPP over Ethernet (RFC 2516)
  - LAN mode support: bridged/routed Ethernet over ATM (RFC 2684) and classical IP over ATM (RFC 1577)
  - Up to 15 VCs (virtual circuits)
  - ATM SAR (segmentation and reassembly)
  - ATM AALC (adaption layer type 5)
- Bridge Mode
  - Ethernet to ADSL self learning Transparent Bridging (IEEE 802.1D)
  - Supports up to 128 MAC learning addresses
- Router Mode
  - IP routing-RIPv2
  - Static routing
  - DNS Proxy
  - Dynamic DNS
  - DMZ
  - Port Forwarding
  - DHCP (dynamic host configuration protocol) server and client
  - NAT (network address translation)
  - ICMP (Internet control message protocol)

- Wireless Features
  - Support wireless data rate up to 300Mbps.
  - Support 802.11b/g , 802.11n draft 2.0 Wireless MIMO Access Point
  - Support 64/128-Bit WEP encryption , 802.1x, WPA, WPA2
- Security
  - Stateful packet inspection and filtering
  - Intrusion detection and protection
  - PAP (password authentication protocol)
  - CHAP (challenge authentication protocol)
  - Password protected system management
- Ethernet Interface
  - Compliant with IEEE 802.3 and 802.3u 10/100 Mbps
- HTTP Web-Based Management
  - Firmware upgrade by UI
  - Customizable Web pages
  - WAN and LAN side connection statistics
  - Configuration of static routes and routing table
  - Password protected access
  - Wireless LAN
  - System log
  - Configuration of VCs (virtual circuits)

1.3 System Requirements

1) Personal computer (PC)

2) Pentium II 233 MHz processor minimum

3) 32 MB RAM minimum

4) 20 MB of free disk space minimum

5) Ethernet Network Interface Controller (NIC) RJ45 Port

6) Internet Browser

Chapter 2 Installation

This chapter offers information about installing your router. If you are not familiar with the hardware or software parameters presented here, please consult your service provider for the values needed.

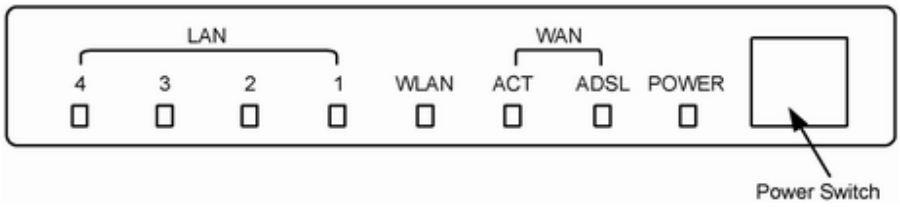
2.1 Checklist

Check the shipping box carefully to ensure that the contents include the items you ordered. If any of the items are missing or damaged, contact your local distributor. The contents of your carton may vary depending on your service provider.

Contents description

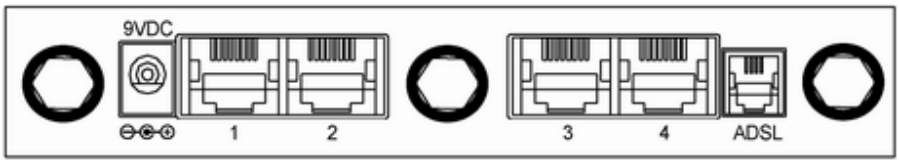
1) ADSL2+ 11n Router for home/office use
2) ADSL2+ 11n Router Installation and Operation Guide (this publication)
3) Power supply with 9Vdc / 1.5 Ampere power adapter
4) ADSL cable RJ-11 telephone cable (6 ft)
5) Ethernet cable Ethernet category 5 twisted pair cable (6 ft)

2.2 The Front LEDs



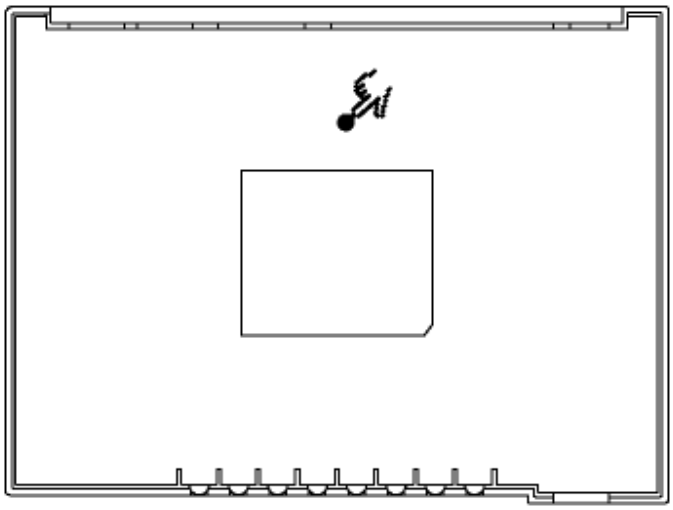
LED	State	Description
POWER	ON	When the router power on.
ADSL	ON	"Showtime"-successful connection between ADSL modem and telephone company's network.
	Flashing	"Handshaking"-modem is trying to establish a connection to telco's network.
	OFF	Modem is powered OFF ADSL Carrier Detect if LED is flash.
ACT	Flashing	Data transmit between router and telco.
WLAN	ON	When wireless AP is ready.
LAN 1-4	ON	Link
	Flashing	TX or RX activity
	OFF	No Link These four LAN (Local Area Network) ports are where you will connect networked devices, such as PCs, print servers remote hard drives, and anything else you want to put on your network.

2.3 The Rear Ports



Connector	Description
POWER	Power connector with 9VDC / 1.5 Ampere.
LAN (1-4)	Router is successfully connected to a device through the corresponding port (1, 2, 3 or 4). If the LED is flashing, the Router is actively sending or receiving data over that port.
ADSL Connector	The RJ-11 connector allows data communication between the modem and the ADSL network through a twisted-pair phone wire.

2.4 The Bottom Port



Connector	Description
Reset Switch	The reset button, the router restore default settings when press until reboot.

2.5 Hardware installation

This section describes how to connect and configure the ADSL2+ Router.

Step 1. Connect the ADSL Line

Connect the router directly to the wall jack using the included ADSL cable.

Step 2. Connect a Workstation to the Router's LAN port

There are two methods to connect the router and workstation. The one use the crossover Ethernet cable to connect directly between them. The other use straight Ethernet cable to connect router with hub (or switch), and then go to the workstation.

Step 3. Connect the Power Adapter to the Router

Connect the power adapter to the port labeled POWER on the rear panel of router.

Step 4. Connect All Cables to the Network

The procedure for connecting cables differs depending on whether or not your telephone equipment is connected to a POTS splitter.

POTS Splitter Configuration (ADSL over POTS)

A POTS splitter separates data signals from voice signals on your telephone line. The POTS splitter works by running a separate data line from the voice line, so that the ADSL router has a dedicated cable for data transmission. Figure 2-5.1 and 2-5.2 shows how to connect all cables to the Router.

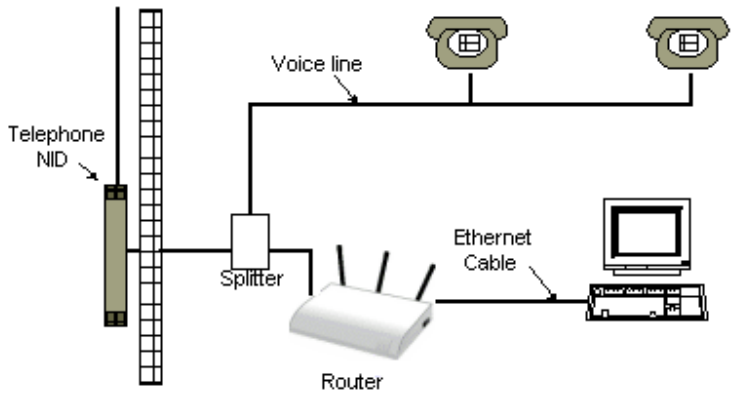


Figure 2-5.1 Router Connected through a POTS Splitter

Note: The POTS splitter may also be installed on the outside of the house adjacent to the telephone network interface device (NID).

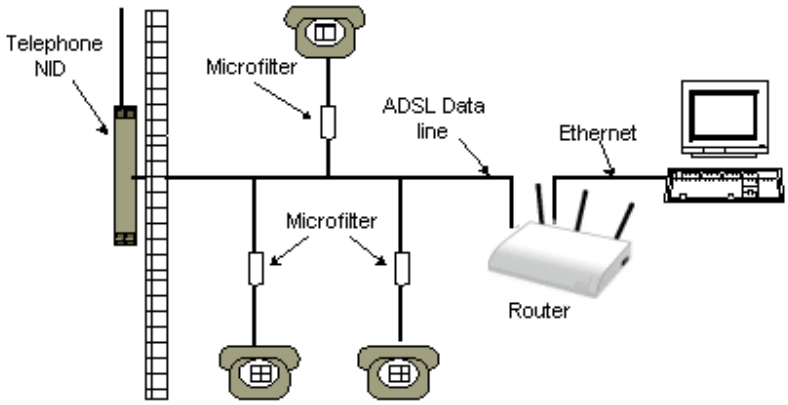


Figure 2-5.2 Router Connected through several micro-filters

ISDN Splitter Configuration (ADSL over ISDN)

A ISDN splitter separates ADSL signals from ISDN signals on your ISDN telephone line. The ISDN splitter works by running a separate ADSL line from the ISDN line, so that the ADSL router has a dedicated cable for data transmission.

Figure 2-5.3 shows how to connect all cables to the Router.

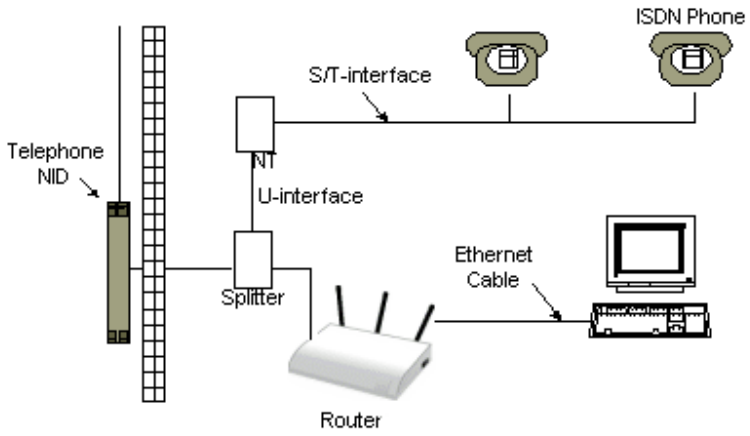


Figure 2-5.3 Router Connected through an ISDN Splitter

Note: The ISDN splitter may also be installed on the outside of the house adjacent to the telephone network interface device (NID).

Chapter 3 Configuration

3.1 Determine your connection settings

Before you configure the router; you need to know the connection information supplied by your ADSL service provider.

3.2 Connecting the ADSL Router to your network

Unlike a simple hub or switch, the setup of the ADSL Router consists of more than simply plugging everything together.

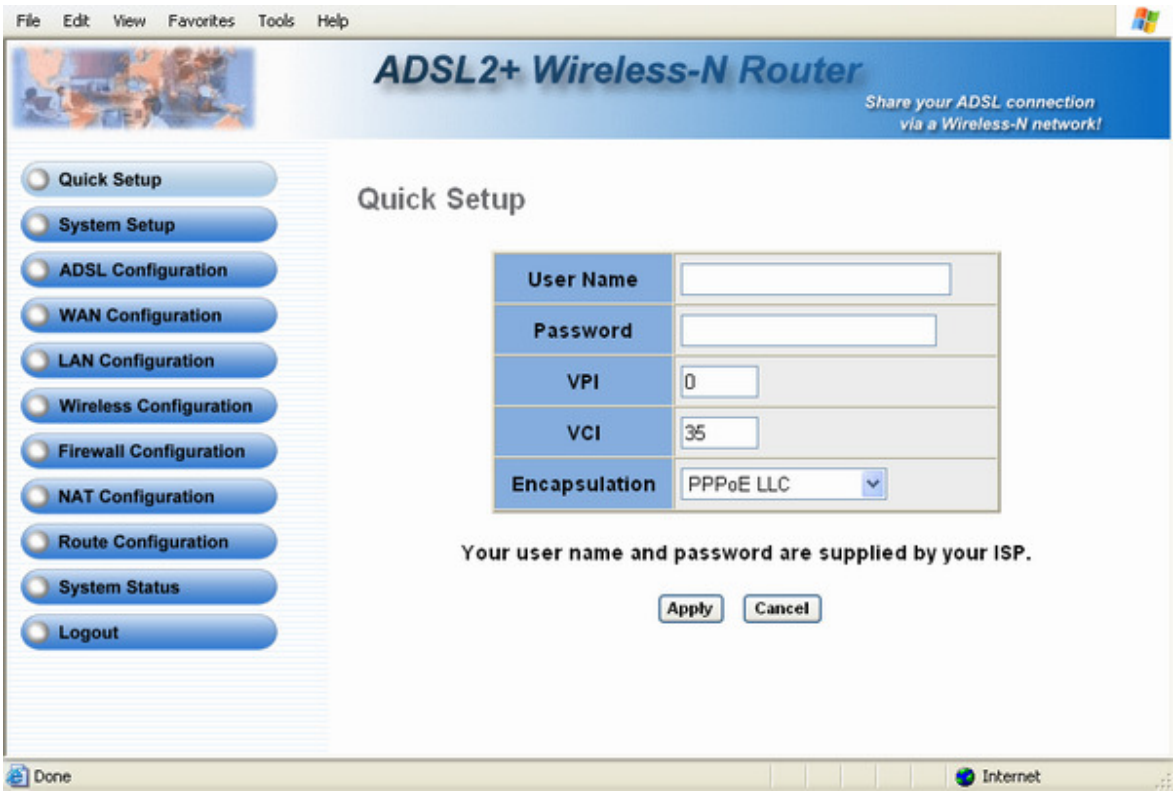
Because the Router acts as a DHCP server, you will have to set some values within the Router, and also configure your networked PCs to accept the IP Addresses the Router chooses to assign them. Generally there are several different operating modes for your applications. And you can know which mode is necessary for your system from ISP. These modes are router, bridge, PPPoE+NAT and NAT and PPPoA+NAT.

3.3 Configuring with Web Browser

It is advisable to change the administrator password to safeguard the security of your network.

To configure the router, open your browser, type '**http://192.168.0.1**' into the address bar and click 'Go' to get to the login page. Save this address in your Favorites for future reference.

At the Password prompt, type '**admin**'. You can change these later if you wish. Click **'LOGIN'**.



You can use "**Quick Setup**" to setup the router, and the router will connect to the Internet via ADSL line.

3.3.1 Hostname Setting

Enter the host name representing your host and the domain name you want to configuration, then you can doing web configuration by typing the whole name you configuration instead by typing the IP address.

3.3.2 System Time

Connecting to a Simple Network Time Protocol (SNTP) server allows the router to synchronize the system clock to the global Internet. The synchronized clock in the router is used to record the security log and control client filtering.

3.3.3 Admin Setting

Set a password to restrict management access to the router. The default is **admin**.

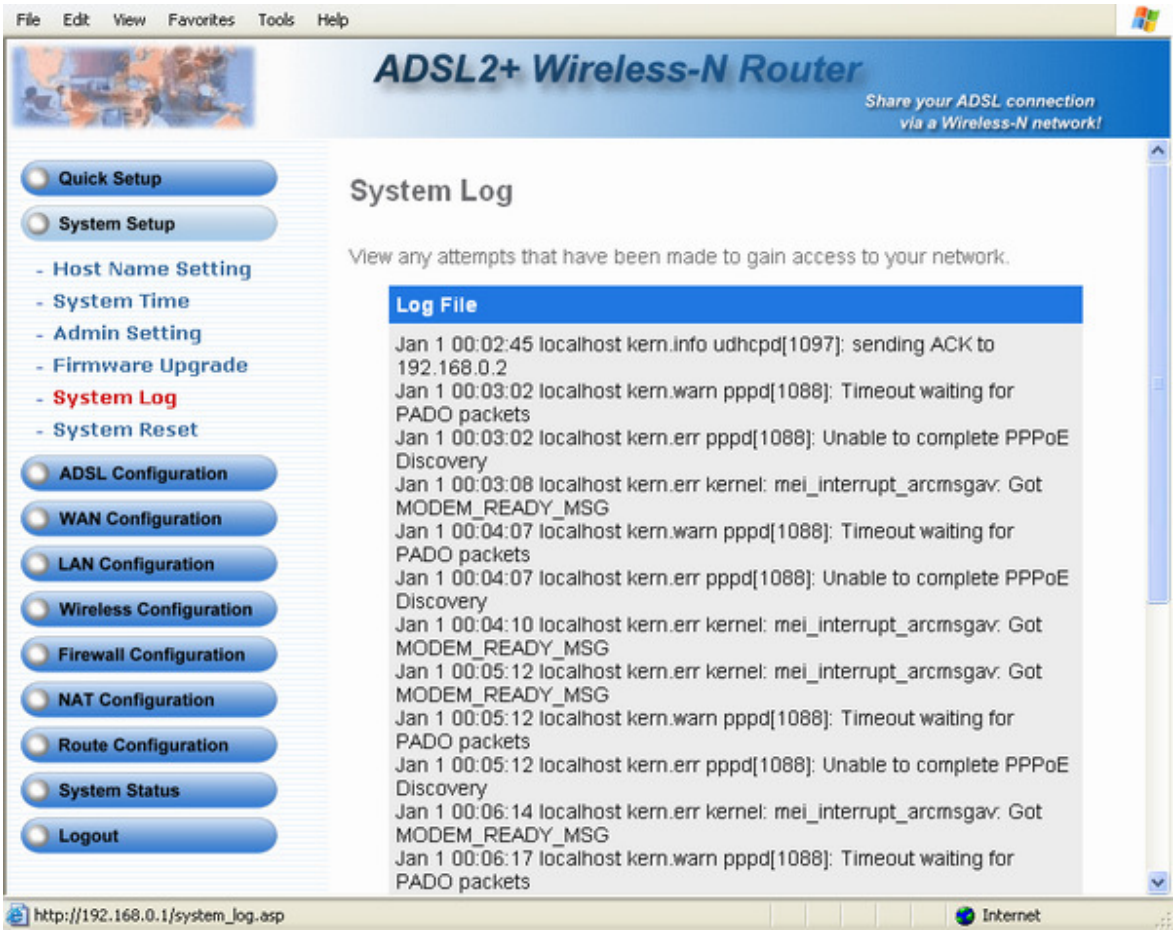
3.3.4 Firmware Update

The new firmware for your router can improve functionality and performance.

Enter the path and name of the upgrade file then click the APPLY button below.

You will be prompted to confirm the upgrade.

3.3.5 System Log


File Edit View Favorites Tools Help
ADSL2+ Wireless-N Router
Share your ADSL connection via a Wireless-N network!
Quick Setup
System Setup
- Host Name Setting
- System Time
- Admin Setting
- Firmware Upgrade
- System Log
- System Reset
ADSL Configuration
WAN Configuration
LAN Configuration
Wireless Configuration
Firewall Configuration
NAT Configuration
Route Configuration
System Status
Logout
System Log
View any attempts that have been made to gain access to your network.
Log File
Jan 1 00:02:45 localhost kern.info udhcpd[1097]: sending ACK to 192.168.0.2
Jan 1 00:03:02 localhost kern.warn pppd[1088]: Timeout waiting for PADO packets
Jan 1 00:03:02 localhost kern.err pppd[1088]: Unable to complete PPPoE Discovery
Jan 1 00:03:08 localhost kern.err kernel: mei_interrupt_arcmsgav: Got MODEM_READY_MSG
Jan 1 00:04:07 localhost kern.warn pppd[1088]: Timeout waiting for PADO packets
Jan 1 00:04:07 localhost kern.err pppd[1088]: Unable to complete PPPoE Discovery
Jan 1 00:04:10 localhost kern.err kernel: mei_interrupt_arcmsgav: Got MODEM_READY_MSG
Jan 1 00:05:12 localhost kern.err kernel: mei_interrupt_arcmsgav: Got MODEM_READY_MSG
Jan 1 00:05:12 localhost kern.warn pppd[1088]: Timeout waiting for PADO packets
Jan 1 00:05:12 localhost kern.err pppd[1088]: Unable to complete PPPoE Discovery
Jan 1 00:06:14 localhost kern.err kernel: mei_interrupt_arcmsgav: Got MODEM_READY_MSG
Jan 1 00:06:17 localhost kern.warn pppd[1088]: Timeout waiting for PADO packets
http://192.168.0.1/system_log.asp
Internet

Click “**Download**” to save or open system log file.

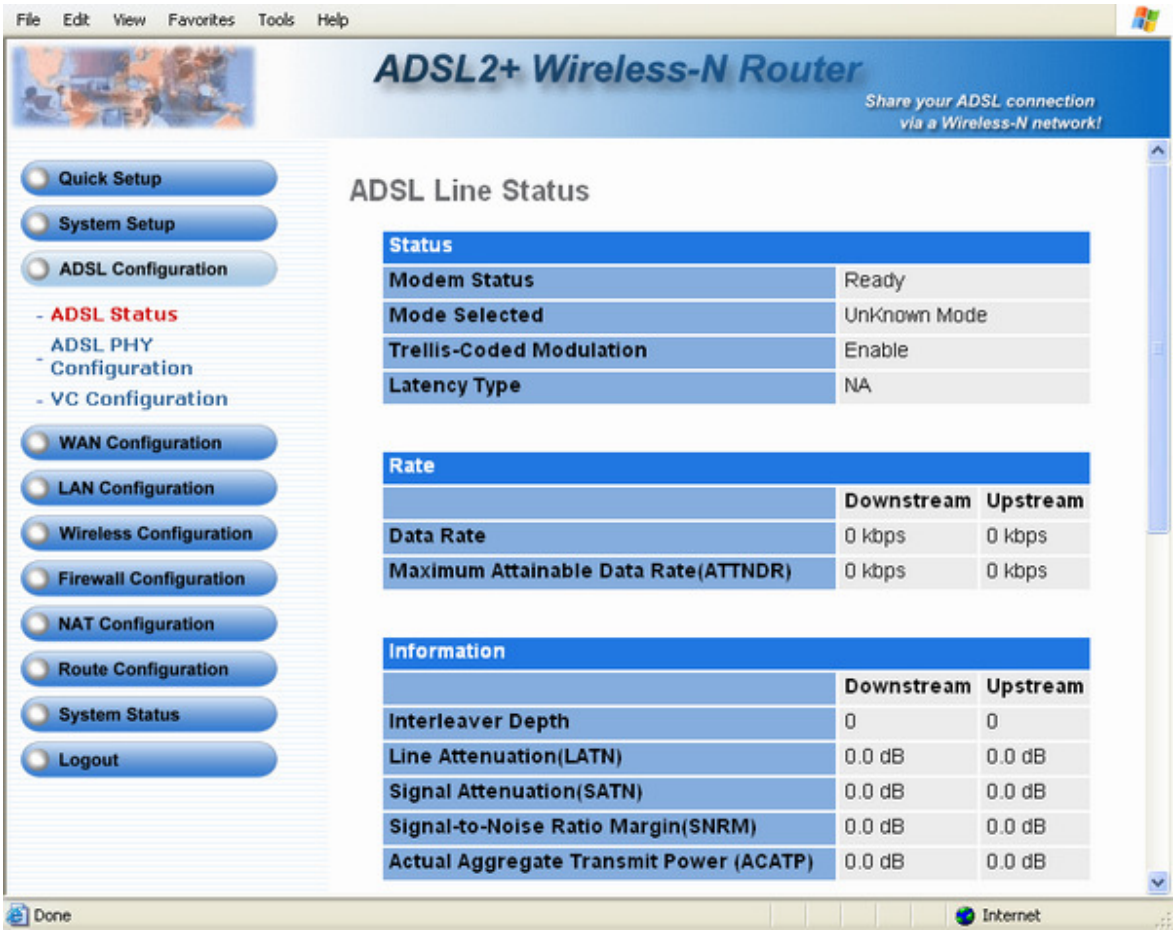
3.3.6 System Reset

File Edit View Favorites Tools Help
ADSL2+ Wireless-N Router
Share your ADSL connection via a Wireless-N network!
Quick Setup
System Setup
- Host Name Setting
- System Time
- Admin Setting
- Firmware Upgrade
- System Log
- System Reset
ADSL Configuration
WAN Configuration
LAN Configuration
Wireless Configuration
Firewall Configuration
NAT Configuration
Route Configuration
System Status
Logout
Reboot and Factory Reset
In the event that the router stops responding correctly or in some way stops functioning, you can perform a reboot. Your settings will not be changed. To perform the reboot, click on the "Reboot" button below. You will be asked to confirm your decision. The reboot will be complete when the power light stops blinking. If you want to set the Router to the default settings, please click on the "Factory Reset" button.
Reboot
Factory Reset
Help
Done
Internet

In the event that the router stops responding correctly or in some way stops functioning, you can perform a reset. Your settings will not be changed. To perform the reset, click on the "**Reset**" button below. You will be asked to confirm your decision.

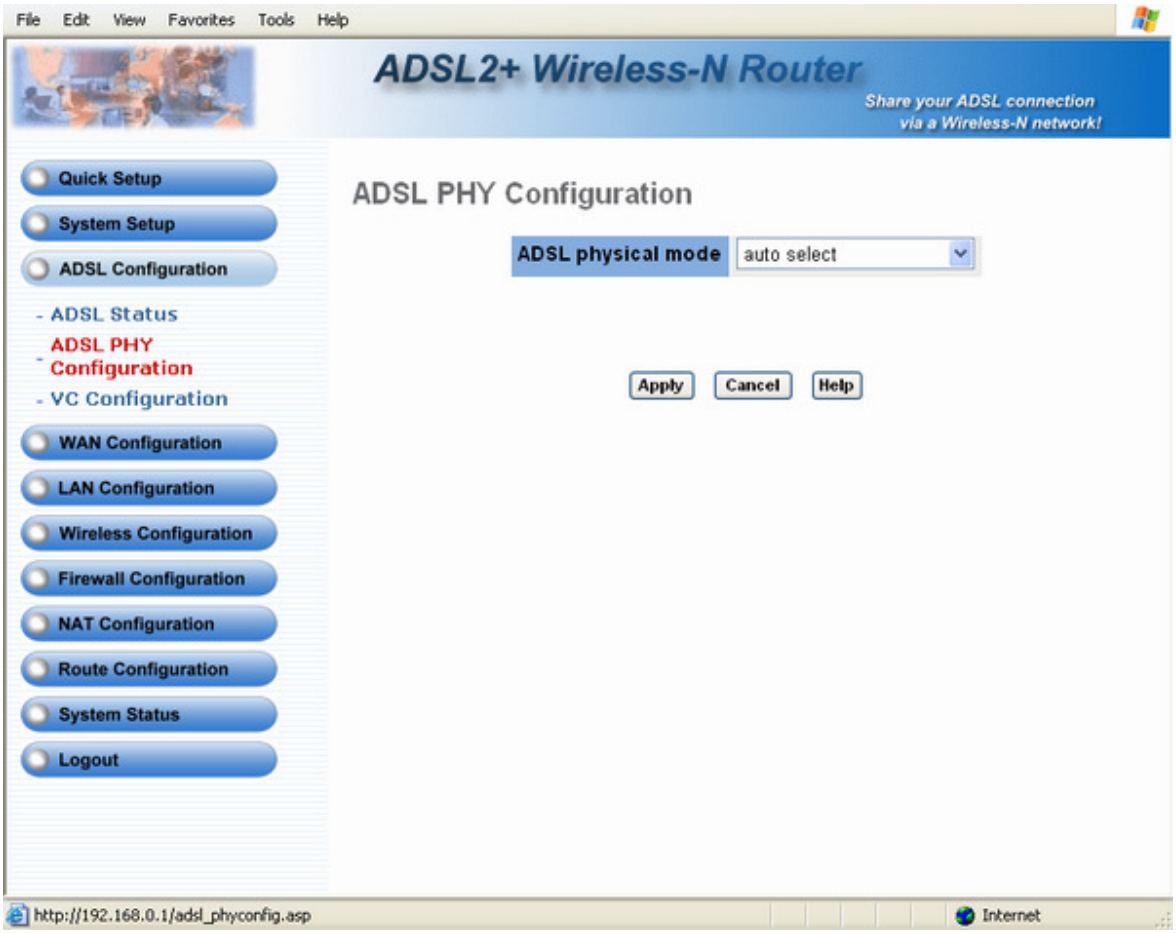
Click on the “**Factory Reset**” button, the router will restore default settings.

3.4.1 ADSL Status



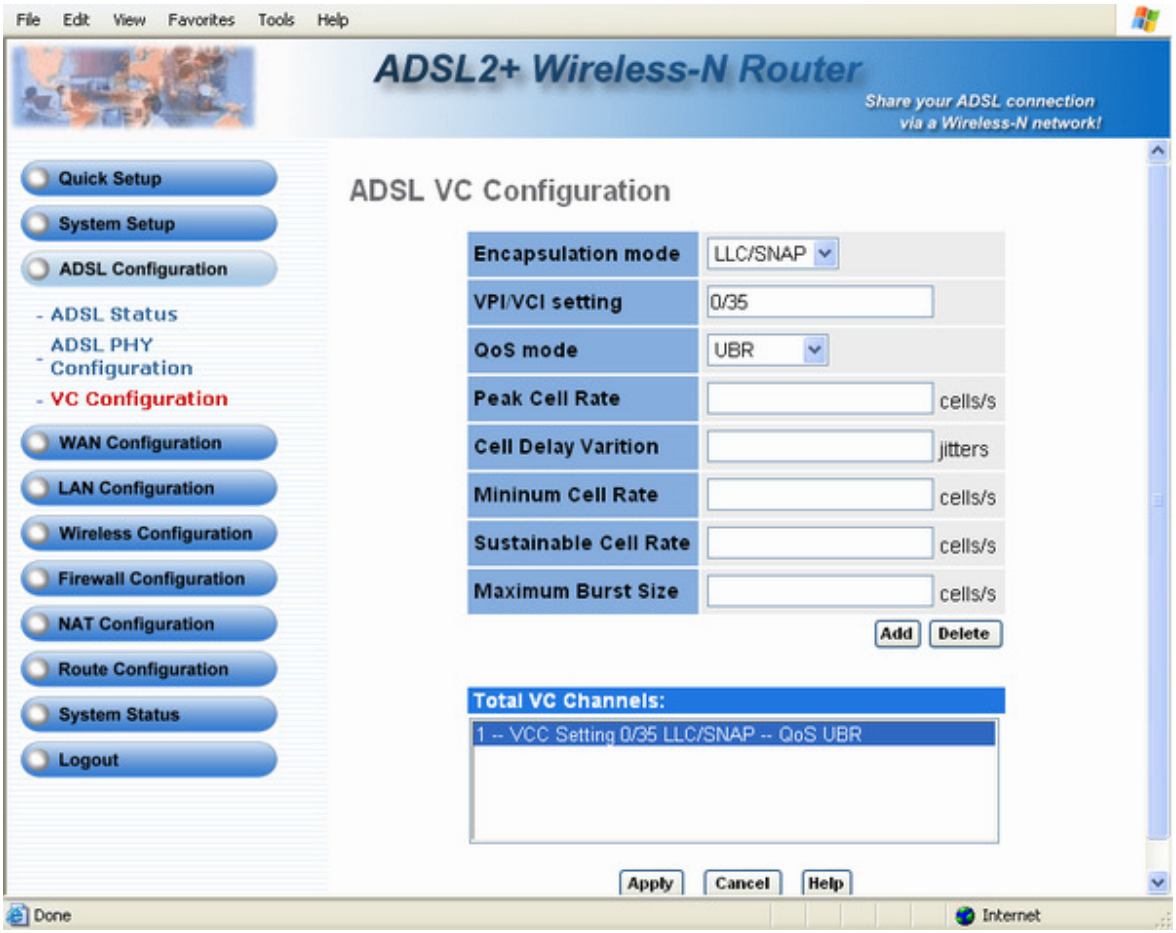
The "**ADSL Line Status**" enables you to check the status of your ADSL connection including how fast data is being transferred.

3.4.2 ADSL PHY Configuration



The "**ADSL PHY Configuration**" enables you to change the ADSL (G.992.1), ADSL2 (G.992.3) and ADSL2+ (G.992.5) settings.

3.4.3 VC Configuration



To add or delete ADSL VC configuration, these information provide by ISP.

Check a VC ID then press “**Apply**”.

3.5.1 WAN Configuration

The router can be connected to your service provider in any of the following ways

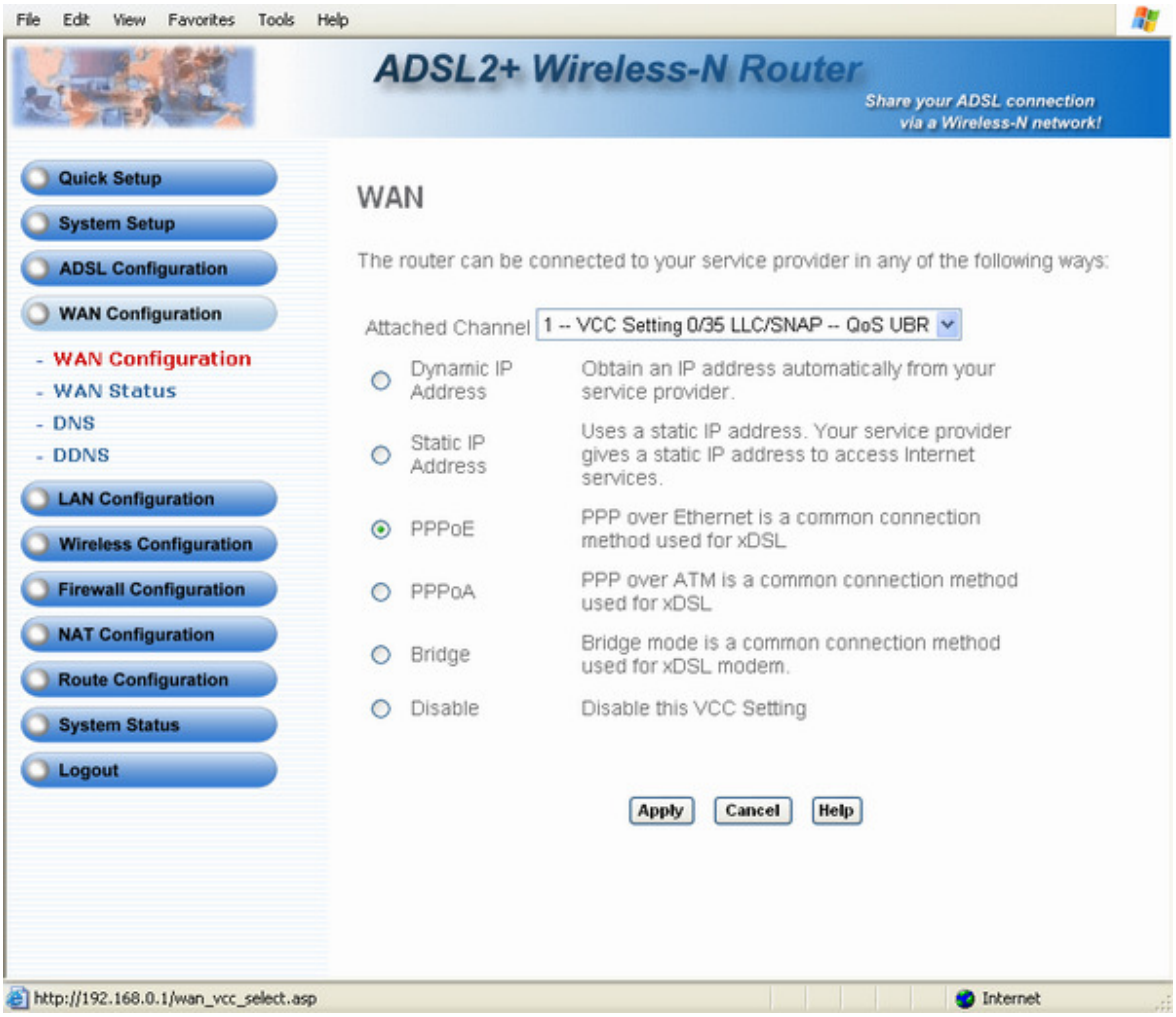
Dynamic IP Address: Obtain an IP address automatically from your service provider.

Static IP Address: Uses a static IP address. Your service provider gives a static IP address to access Internet services.

PPPoE: PPP over Ethernet is a common connection method used for xDSL

PPPoA: PPP over ATM is a common connection method used for xDSL

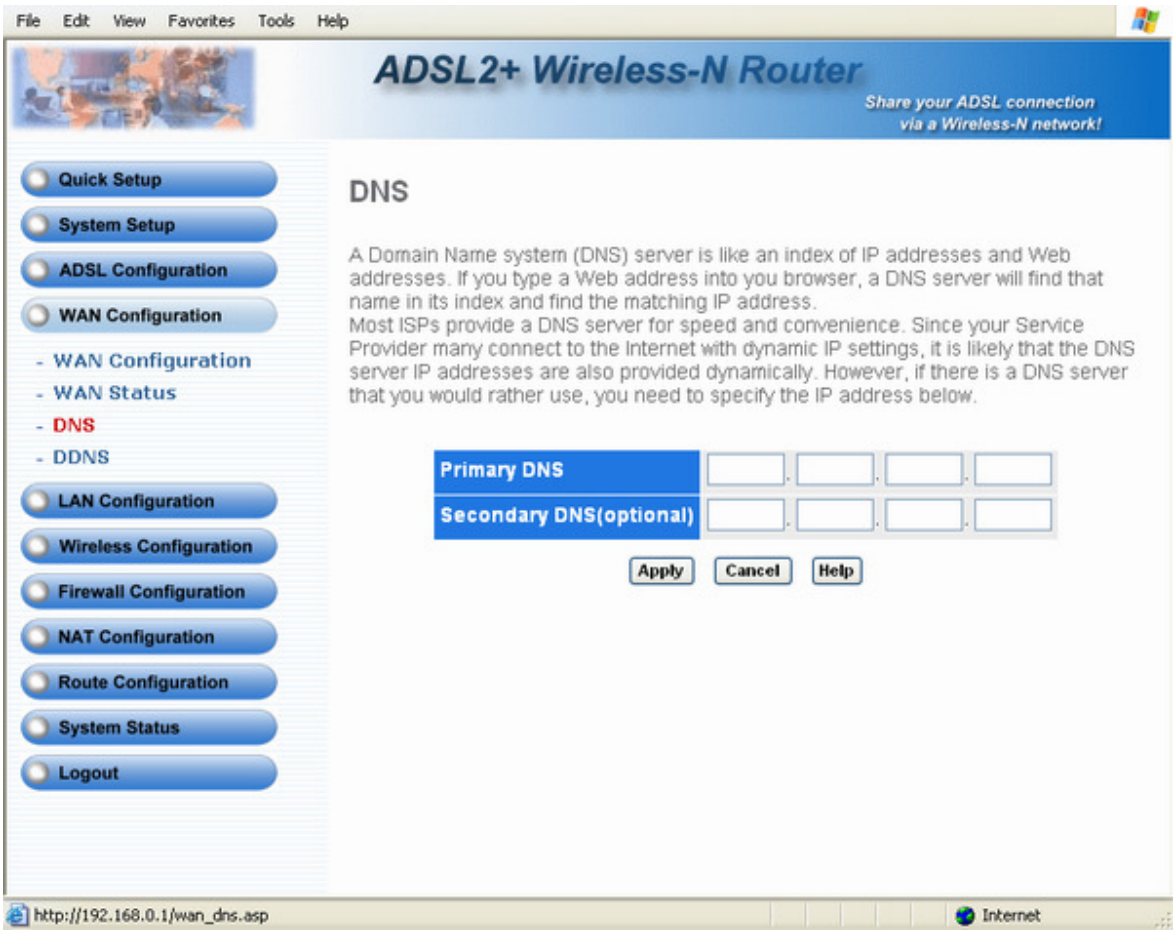
Bridge: Bridge mode is a common connection method used for xDSL modem.


File Edit View Favorites Tools Help
ADSL2+ Wireless-N Router
Share your ADSL connection via a Wireless-N network!
Quick Setup
System Setup
ADSL Configuration
WAN Configuration
- WAN Configuration
- WAN Status
- DNS
- DDNS
LAN Configuration
Wireless Configuration
Firewall Configuration
NAT Configuration
Route Configuration
System Status
Logout
WAN
The router can be connected to your service provider in any of the following ways:
Attached Channel 1 -- VCC Setting 0/35 LLC/SNAP -- QoS UBR
Dynamic IP Address
Obtain an IP address automatically from your service provider.
Static IP Address
Uses a static IP address. Your service provider gives a static IP address to access Internet services.
PPPoE
PPP over Ethernet is a common connection method used for xDSL
PPPoA
PPP over ATM is a common connection method used for xDSL
Bridge
Bridge mode is a common connection method used for xDSL modem.
Disable
Disable this VCC Setting
Apply
Cancel
Help
http://192.168.0.1/wan_vcc_select.asp
Internet

3.5.2 WAN Status

User can check the WAN link Status at this page. If the link is fail, you can directly press "**Connect**" button to link again.

3.5.3 DNS


File Edit View Favorites Tools Help
ADSL2+ Wireless-N Router
Share your ADSL connection via a Wireless-N network!
Quick Setup
System Setup
ADSL Configuration
WAN Configuration
- WAN Configuration
- WAN Status
- DNS
- DDNS
LAN Configuration
Wireless Configuration
Firewall Configuration
NAT Configuration
Route Configuration
System Status
Logout
DNS
A Domain Name system (DNS) server is like an index of IP addresses and Web addresses. If you type a Web address into you browser, a DNS server will find that name in its index and find the matching IP address.
Most ISPs provide a DNS server for speed and convenience. Since your Service Provider many connect to the Internet with dynamic IP settings, it is likely that the DNS server IP addresses are also provided dynamically. However, if there is a DNS server that you would rather use, you need to specify the IP address below.
Primary DNS
Secondary DNS(optional)
Apply
Cancel
Help
http://192.168.0.1/wan_dns.asp
Internet

A Domain Name system (DNS) server is like an index of IP addresses and Web addresses.

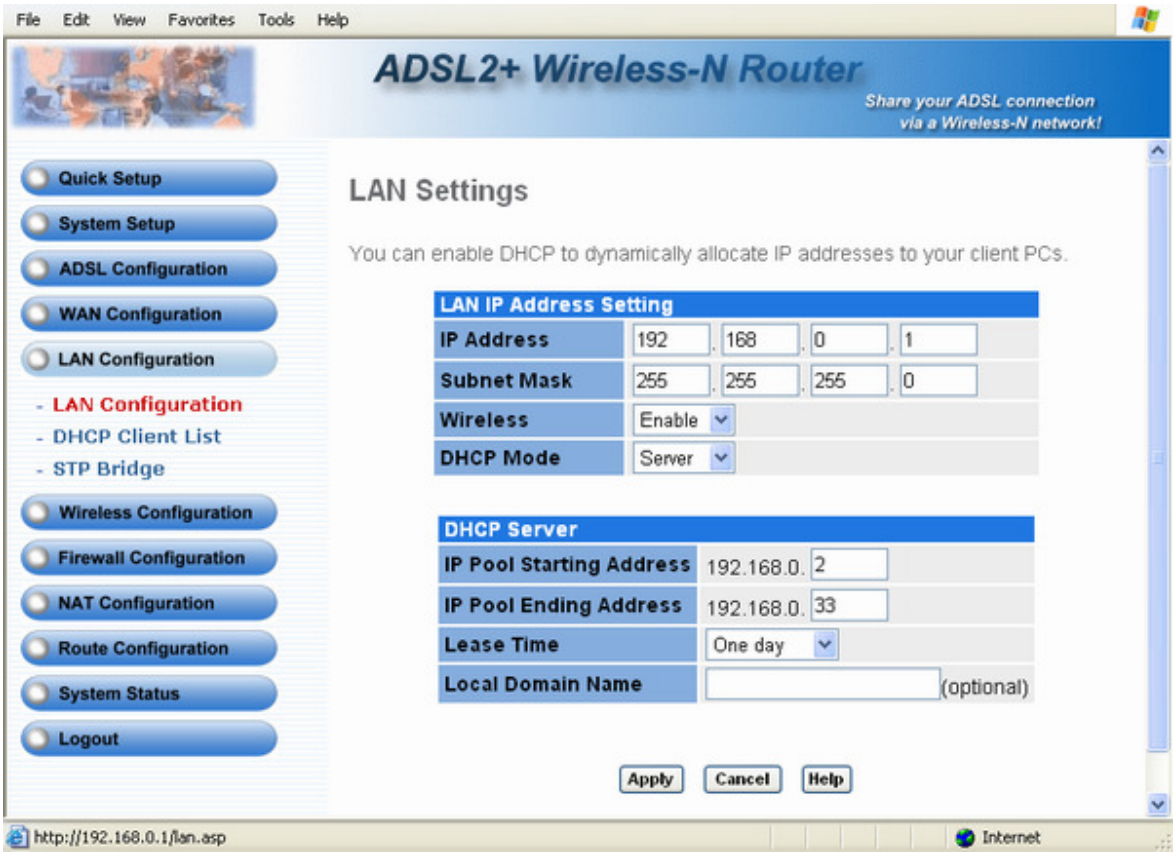
If you type a Web address into you browser, a DNS server will find that name in its index and find the matching IP address. Most ISPs provide a DNS server for speed and convenience. Since your Service Provider many connect to the Internet with dynamic IP settings, it is likely that the DNS server IP addresses are also provided dynamically.

However, if there is a DNS server that you would rather use, you need to specify the IP address below.

3.5.4 DDNS

Dynamic DNS allows you to update your dynamic IP address with one or many dynamic DNS services. So anyone can access your FTP or Web service on your computer using DNS-like address.

3.6.1 LAN Configuration



The "**LAN Settings**" option enables you to configure the LAN port.

If the DHCP Relay is selected, the DHCP requests from local PCs are forward to the DHCP server runs on WAN side. To have this function working properly, disable the NAT to run on router mode only, disable the DHCP server on the LAN port, and make sure the routing table has the correct routing entry.

3.6.2 DHCP Client List

The DHCP client list allows you to see which clients are connected to the router via IP address and MAC address.

3.6.3 STB Bridge

Please refer to your ISP for more information on when to configure the router as a bridge.

3.7.1 Wireless Setting

SSID

The identifier is for the network. You can change the SSID. Only devices with the same SSID can interconnect.

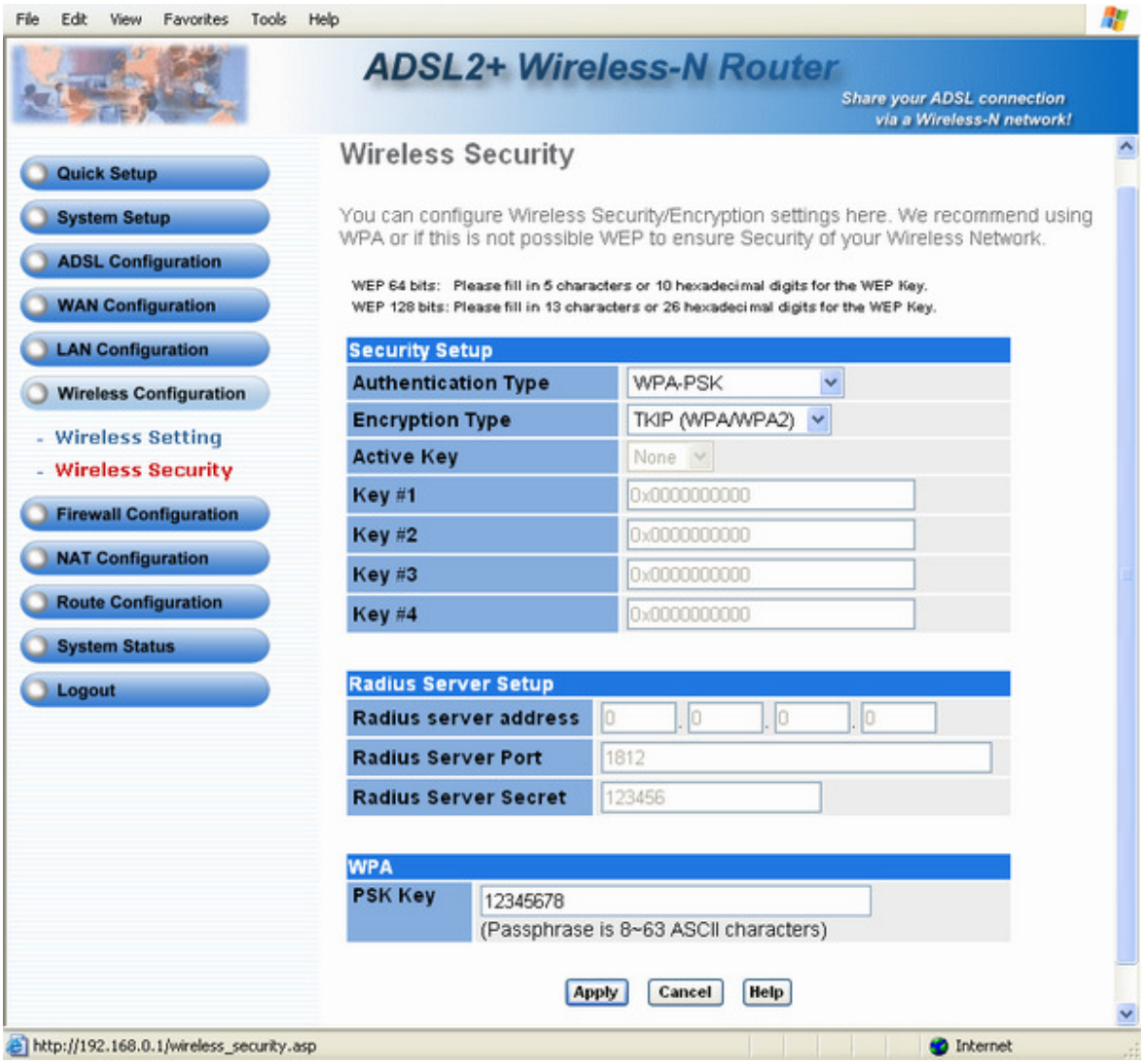
Channel ID

The channel number is used for networking. The channel setting of the wireless devices within a network should be the same.

Operation Rate

There are several operation modes for wireless: 802.11b only, 802.11g only, 802.11b/g, 802.11n only, 802.11g/n, 802.11b/g/n

3.7.2 Wireless Security


File Edit View Favorites Tools Help
ADSL2+ Wireless-N Router
Share your ADSL connection via a Wireless-N network!
Quick Setup
System Setup
ADSL Configuration
WAN Configuration
LAN Configuration
Wireless Configuration
- Wireless Setting
- Wireless Security
Firewall Configuration
NAT Configuration
Route Configuration
System Status
Logout
Wireless Security
You can configure Wireless Security/Encryption settings here. We recommend using WPA or if this is not possible WEP to ensure Security of your Wireless Network.
WEP 64 bits: Please fill in 5 characters or 10 hexadecimal digits for the WEP Key.
WEP 128 bits: Please fill in 13 characters or 26 hexadecimal digits for the WEP Key.
Security Setup
Authentication Type WPA-PSK
Encryption Type TKIP (WPA/WPA2)
Active Key None
Key #1 0x0000000000
Key #2 0x0000000000
Key #3 0x0000000000
Key #4 0x0000000000
Radius Server Setup
Radius server address 0 . 0 . 0 . 0
Radius Server Port 1812
Radius Server Secret 123456
WPA
PSK Key 12345678
(Passphrase is 8~63 ASCII characters)
Apply Cancel Help
http://192.168.0.1/wireless_security.asp
Internet

The Authentication type supports “Open system”, “Shared key”, “WPA-802.1x/ WPA2-802.1x” and “WPA-PSK/ WPA2-PSK”.

3.8.1 Firewall Setting

The router provides extensive firewall protection by restricting connection parameters to limit the risk of intrusion and defending against a wide array of common hacker attacks. However, for applications that requires unrestricted access to the Internet.

3.8.2 DoS Options

"**Block WAN Scan**" allow you to prevent the hackers from testing the services of the router. "Discard ping from WAN side" cause the router to not respond to the hacker scan packets from the public WAN IP address.

3.8.3 Packet Filtering

To add packet filtering rule to block certain packet.

3.8.4 MAC Control

You can block certain client PCs accessing the Internet based on MAC address.

3.9.1 NAT Setting

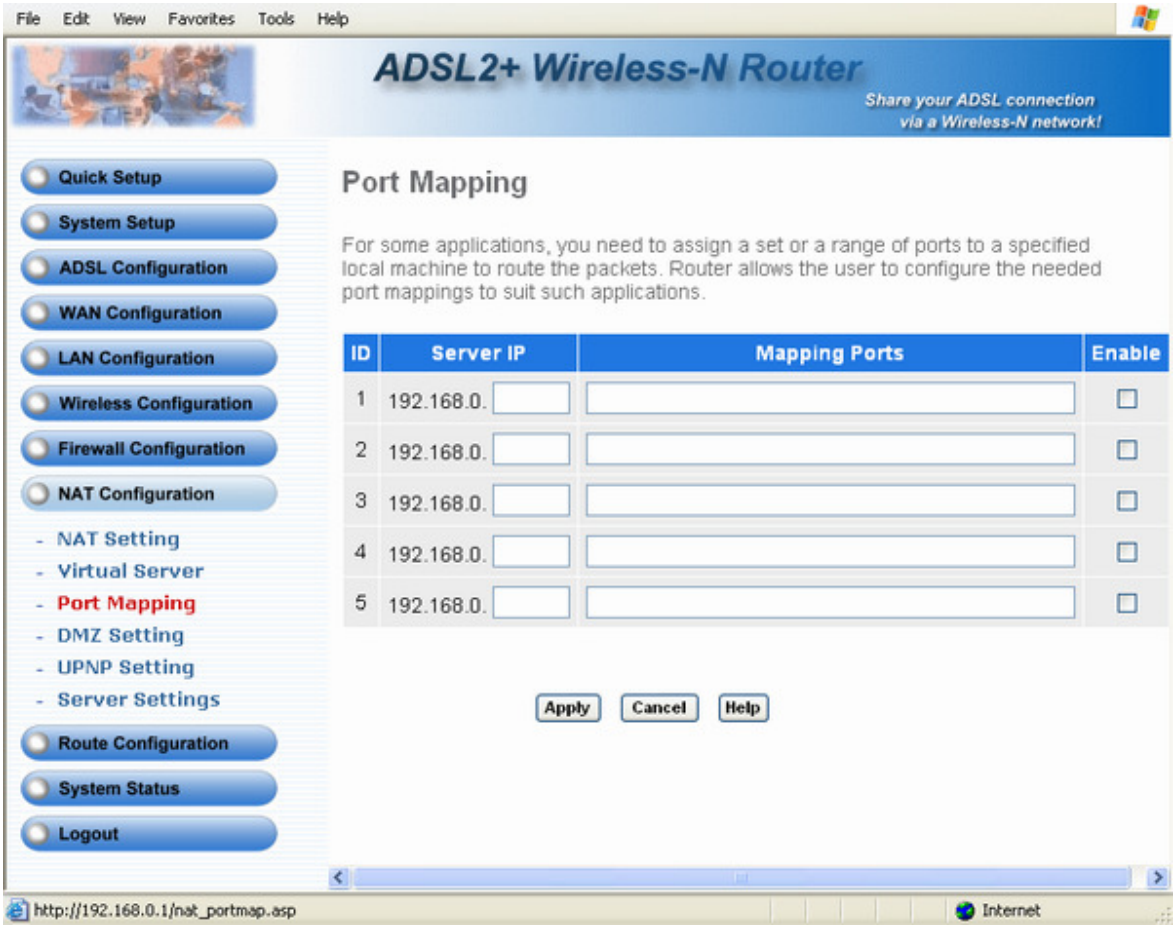
Network Address Translation (NAT) allows multiple users at your local site to access the Internet through a single public IP address or multiple public IP addresses. NAT can also prevent hacker attacks by mapping local addresses to public addresses for key services such as the Web or FTP.

3.9.2 Virtual Server

File Edit View Favorites Tools Help
ADSL2+ Wireless-N Router
Share your ADSL connection via a Wireless-N network!
Quick Setup
System Setup
ADSL Configuration
WAN Configuration
LAN Configuration
Wireless Configuration
Firewall Configuration
NAT Configuration
- NAT Setting
- Virtual Server
- Port Mapping
- DMZ Setting
- UPNP Setting
- Server Settings
Route Configuration
System Status
Logout
Virtual Server
You can configure the router as a virtual server so that remote users accessing services such as the Web or FTP at your local site via public IP addresses can be automatically redirected to local servers configured with private IP addresses. In other words, depending on the requested service (TCP/UDP port numbers), the router redirects the external service request to the appropriate server (located at another internal IP address).
ID
Private IP
Private Port
Type
Public Port
Enabled
1 192.168.0. TCP UDP
2 192.168.0. TCP UDP
3 192.168.0. TCP UDP
4 192.168.0. TCP UDP
5 192.168.0. TCP UDP
Apply
Cancel
Help
Done
Internet

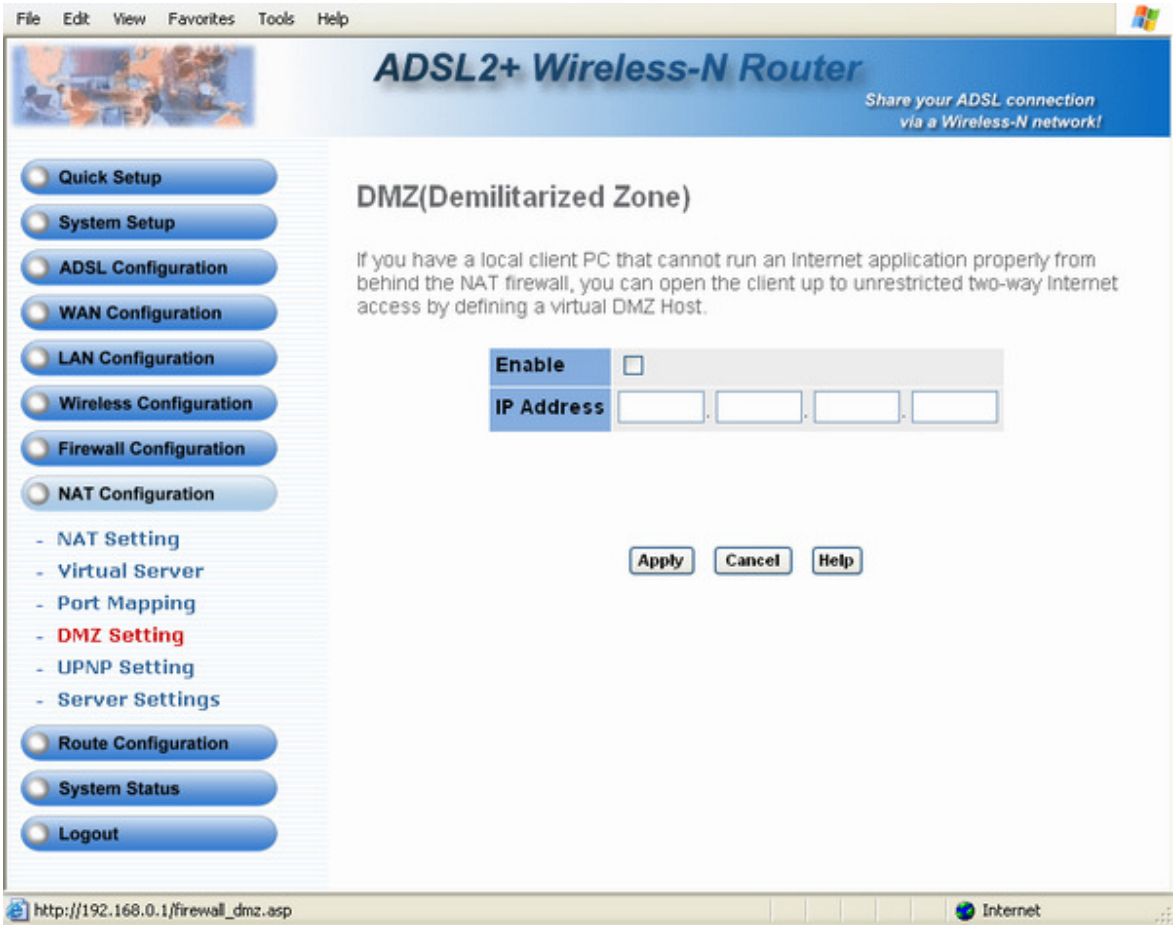
You can configure the router as a virtual server so that remote users accessing services such as the Web or FTP at your local site via public IP addresses can be automatically redirected to local servers configured with private IP addresses. In other words, depending on the requested service (TCP/UDP port numbers), the router redirects the external service request to the appropriate server (located at another internal IP address).

3.9.3 Port Mapping



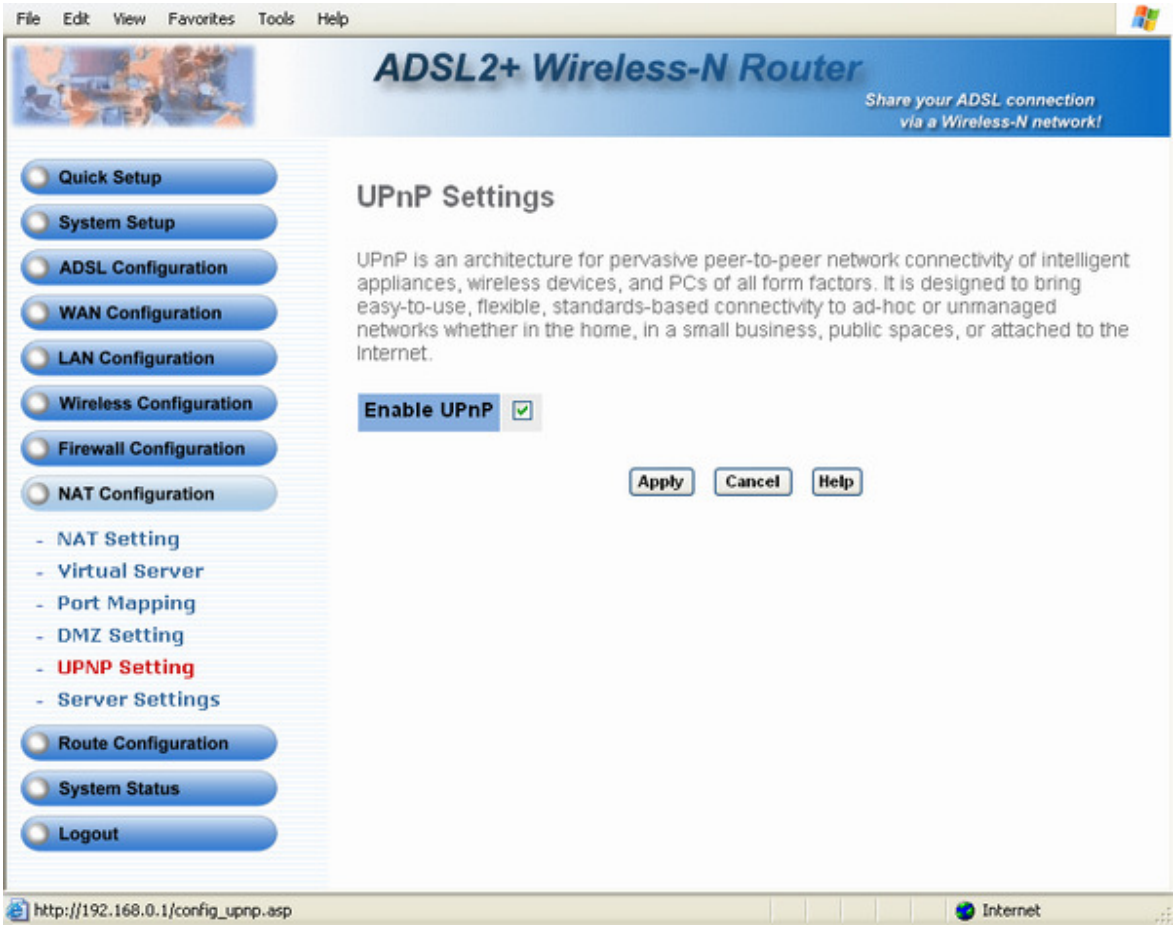
For some applications, you need to assign a set or a range of ports (example 4000-5000) to a specified local machine to route the packets. The router allows the user to configure the needed port mappings to suit such applications.

3.9.4 DMZ Setting



If you have a local client PC that cannot run an Internet application properly from behind the NAT firewall, you can open the client up to unrestricted two-way Internet access by defining a virtual DMZ Host.

3.9.5 UPNP Setting

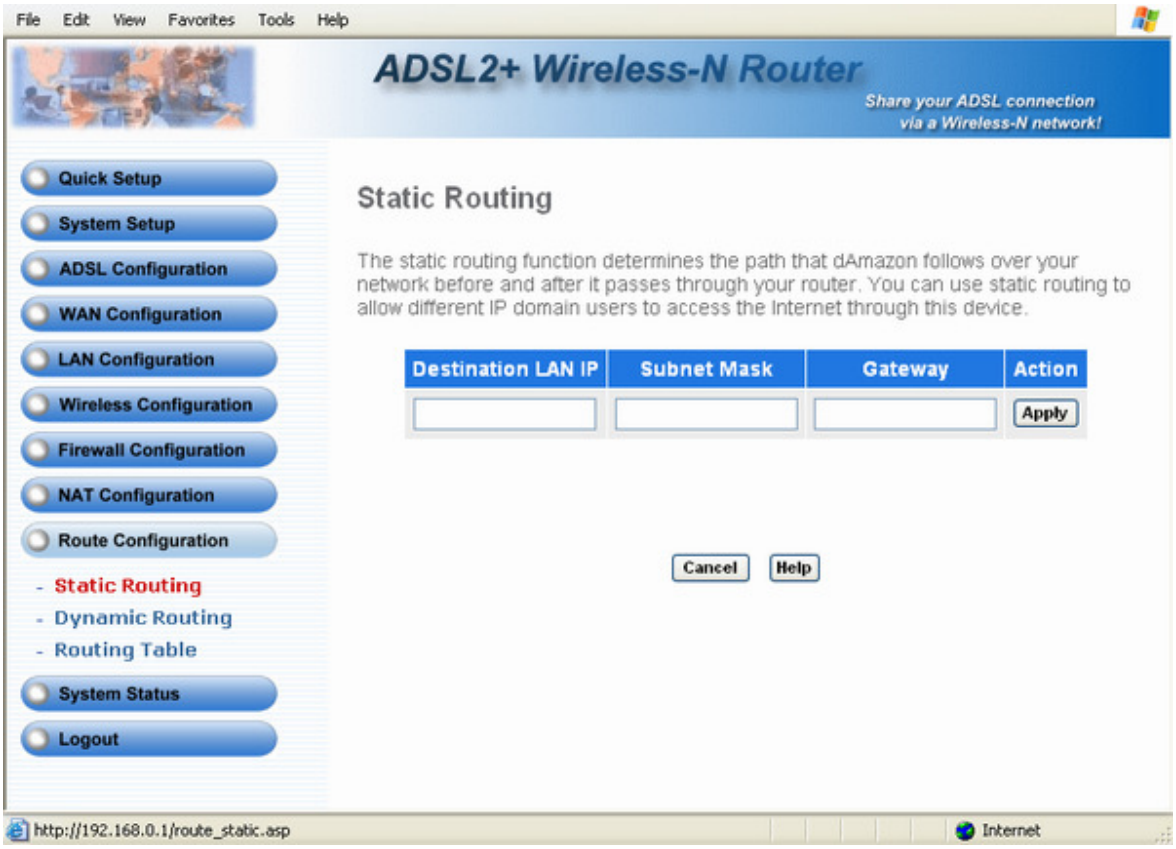

File Edit View Favorites Tools Help
ADSL2+ Wireless-N Router
Share your ADSL connection via a Wireless-N network!
Quick Setup
System Setup
ADSL Configuration
WAN Configuration
LAN Configuration
Wireless Configuration
Firewall Configuration
NAT Configuration
- NAT Setting
- Virtual Server
- Port Mapping
- DMZ Setting
- UPNP Setting
- Server Settings
Route Configuration
System Status
Logout
UPnP Settings
UPnP is an architecture for pervasive peer-to-peer network connectivity of intelligent appliances, wireless devices, and PCs of all form factors. It is designed to bring easy-to-use, flexible, standards-based connectivity to ad-hoc or unmanaged networks whether in the home, in a small business, public spaces, or attached to the Internet.
Enable UPnP
Apply
Cancel
Help
http://192.168.0.1/config_upnp.asp
Internet

UPnP is architecture for pervasive peer-to-peer network connectivity of intelligent appliances, wireless devices, and PCs of all form factors. It is designed to bring easy-to-use, flexible, standards-based connectivity to ad-hoc or unmanaged networks whether in the home, in a small business, public spaces, or attached to the Internet.

3.9.6 Application Server Setting

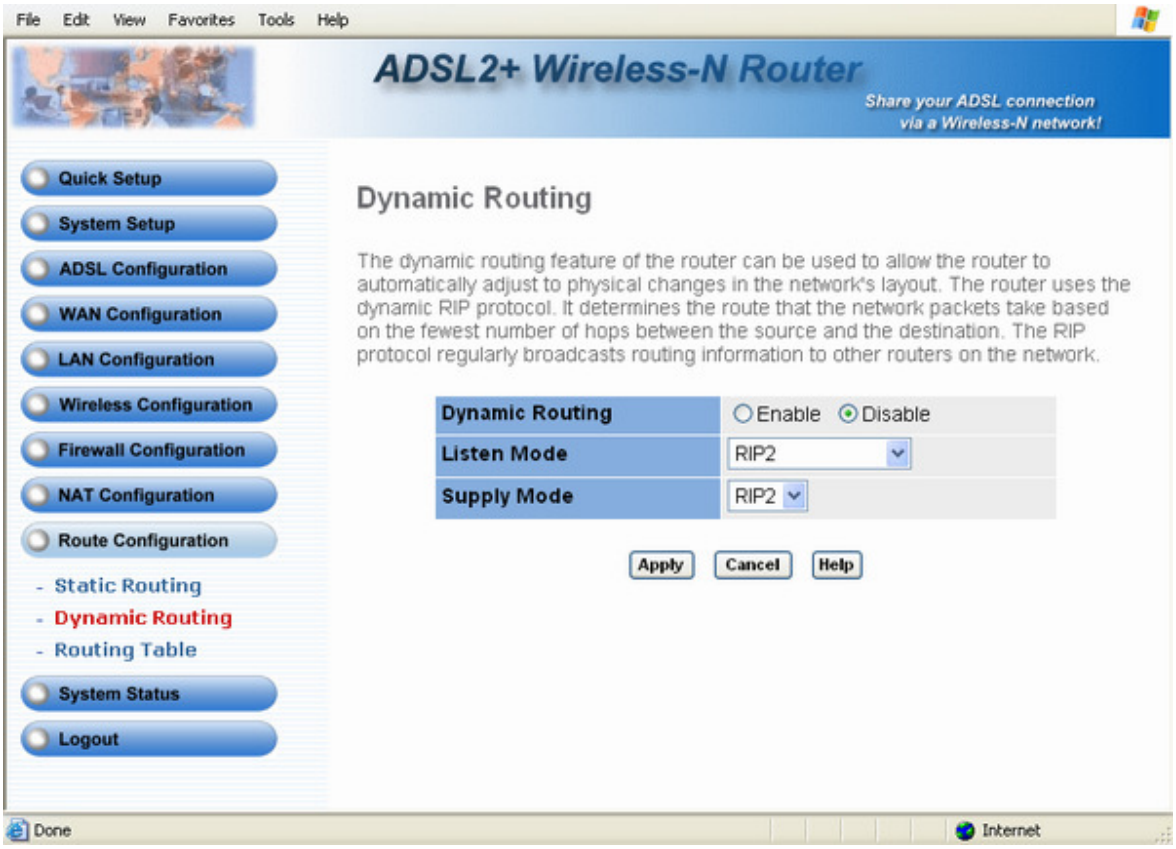
If you have server internal, you can easy to set the server at this page. The device supports WEB, Telnet, SSH, TFTP and FTP server.

3.10.1 Static Routing



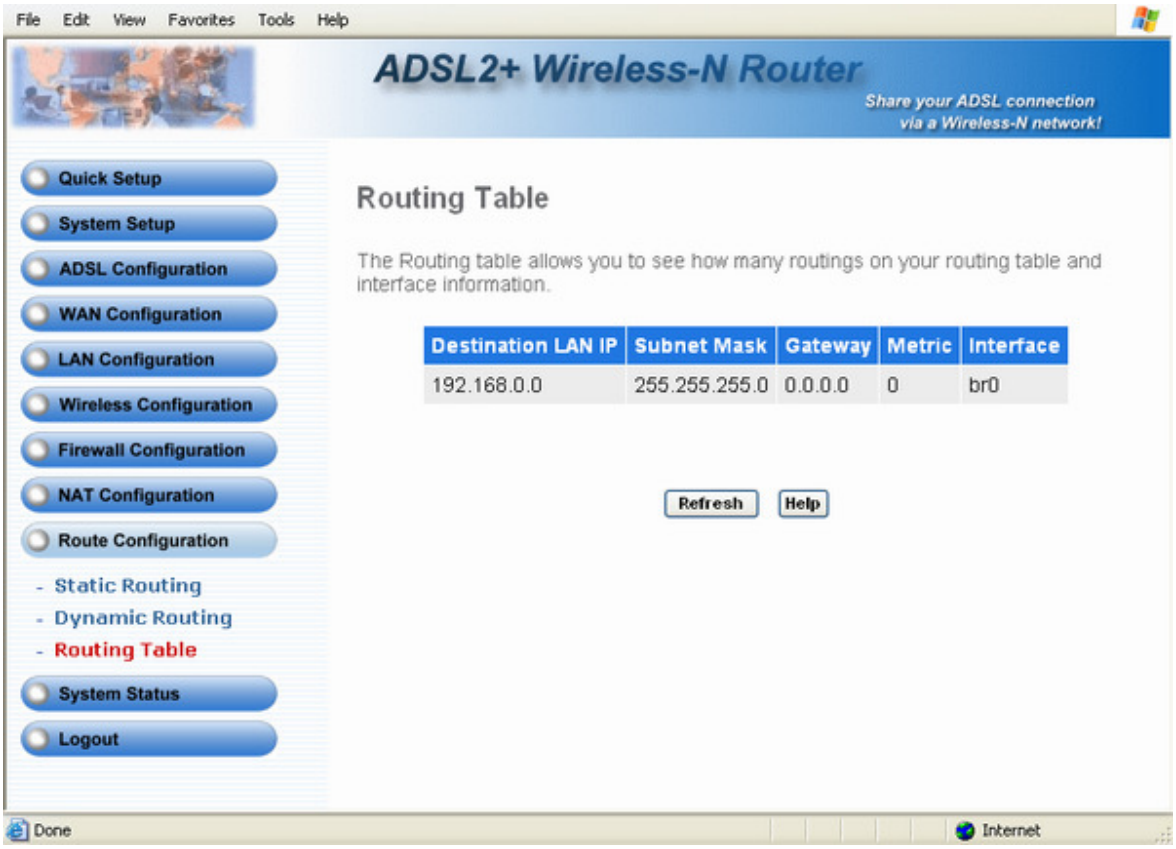
The static routing function determines the path that router follows over your network before and after it passes through your router. You can use static routing to allow different IP domain users to access the Internet through this device.

3.10.2 Dynamic Routing


File Edit View Favorites Tools Help
ADSL2+ Wireless-N Router
Share your ADSL connection via a Wireless-N network!
Quick Setup
System Setup
ADSL Configuration
WAN Configuration
LAN Configuration
Wireless Configuration
Firewall Configuration
NAT Configuration
Route Configuration
- Static Routing
- Dynamic Routing
- Routing Table
System Status
Logout
Dynamic Routing
The dynamic routing feature of the router can be used to allow the router to automatically adjust to physical changes in the network's layout. The router uses the dynamic RIP protocol. It determines the route that the network packets take based on the fewest number of hops between the source and the destination. The RIP protocol regularly broadcasts routing information to other routers on the network.
Dynamic Routing
Enable
Disable
Listen Mode
RIP2
Supply Mode
RIP2
Apply
Cancel
Help
Done
Internet

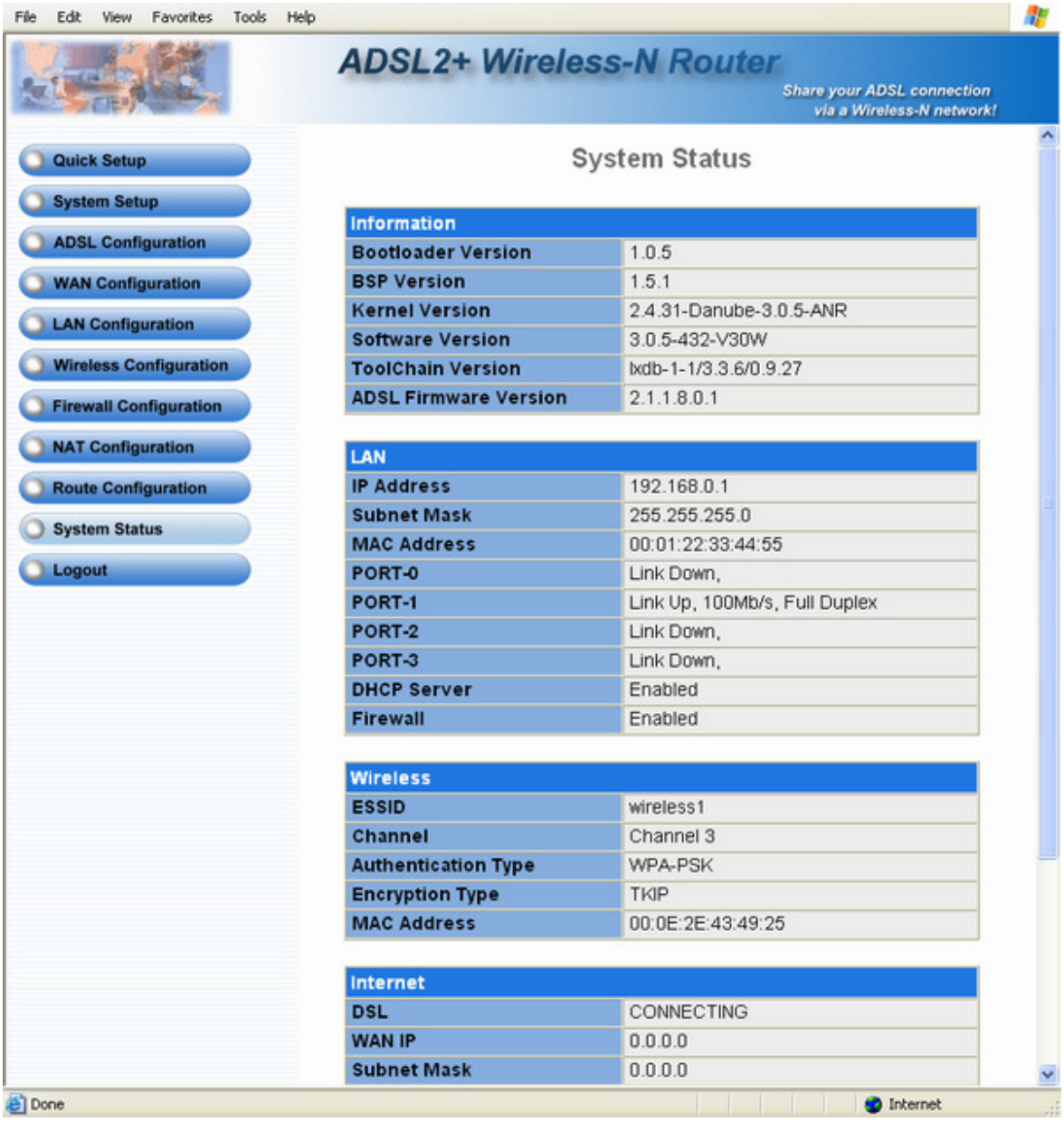
The dynamic routing feature of the router can be used to allow the router to automatically adjust to physical changes in the network's layout. The router uses the dynamic RIP protocol. It determines the route that the network packets take based on the fewest number of hops between the source and the destination. The RIP protocol regularly broadcasts routing information to other routers on the network.

3.10.3 Routing Table



The Routing table allows you to see how many routings on your routing table and interface information.

3.11.1 System Status

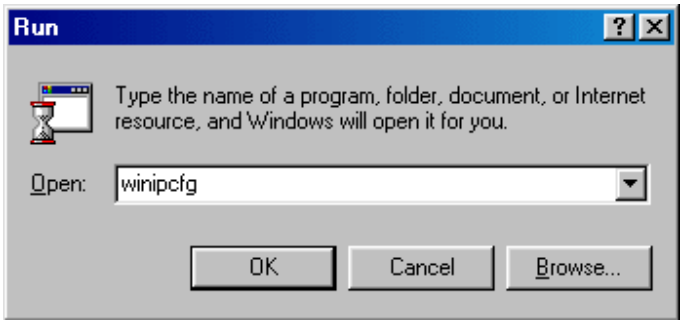


The System Status page shows the device's firmware version, WAN, LAN, Wireless and Internet status.

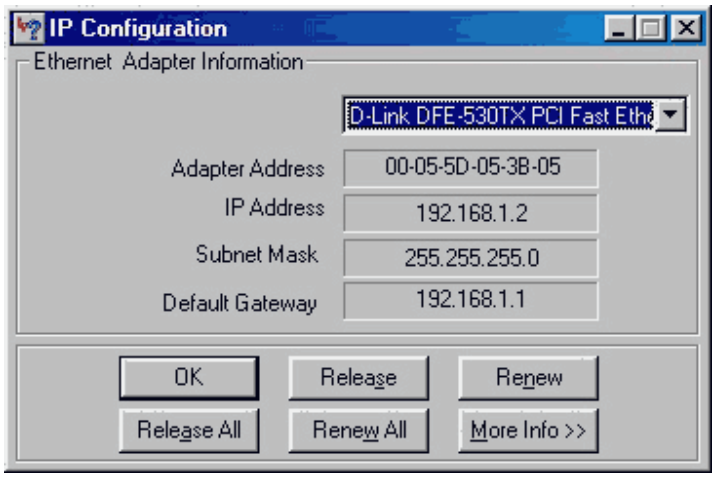
3.12.1 TCP/IP Settings for Windows Operating System

1. How can I find my IP Address in Windows 95, 98, or Me?

- Click on **Start**, then click on **Run**.
- The Run Dialogue Box will appear. Type **winipcfg** in the window as shown then click OK



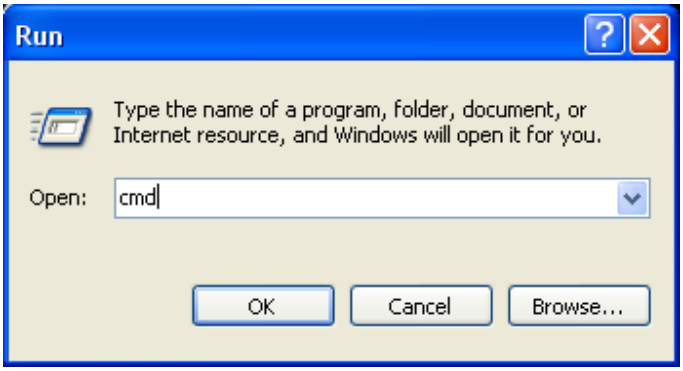
- The **IP Configuration** window will appear, displaying your **Ethernet Adapter Information**.
- Select your adapter from the drop down menu.
- If you do not see your adapter in the drop down menu, your adapter is not properly installed.



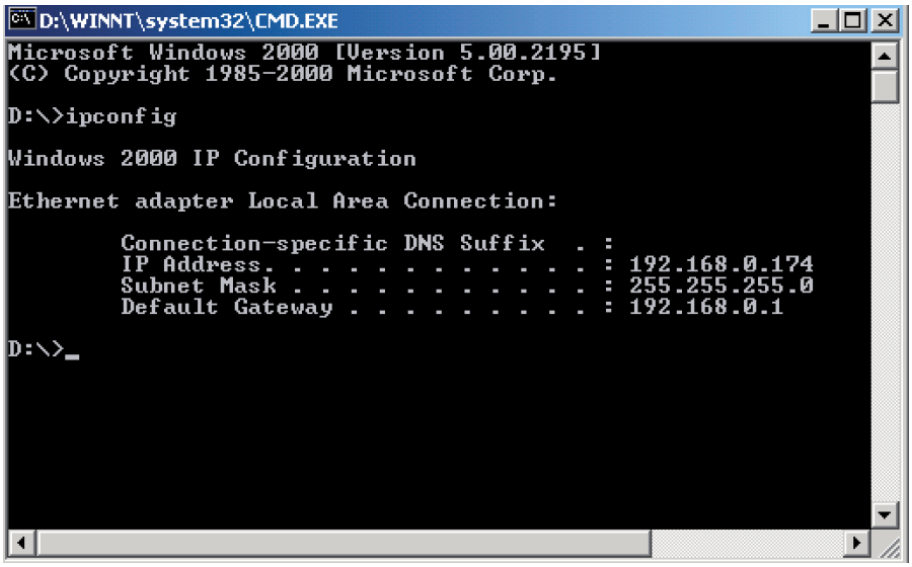
- After selecting your adapter, it will display your IP Address, subnet mask, and default gateway.
- Click **OK** to close the IP Configuration window.

2. How can I find my IP Address in Windows 2000/XP?

- Click on **Start** and select **Run**.
- Type **cmd** then click **OK**.



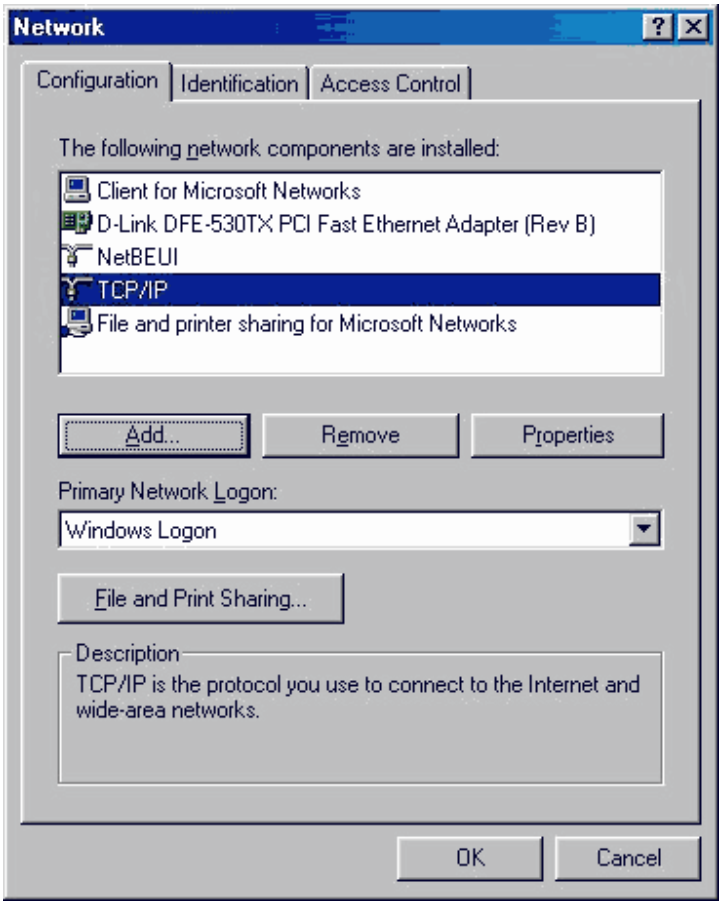
- From the Command Prompt, enter **ipconfig**. It will return your IP Address, subnet mask, and default gateway.


D:\WINNT\system32\CMD.EXE
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.
D:\>ipconfig
Windows 2000 IP Configuration
Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . :
IP Address. . . . . : 192.168.0.174
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.0.1
D:\>

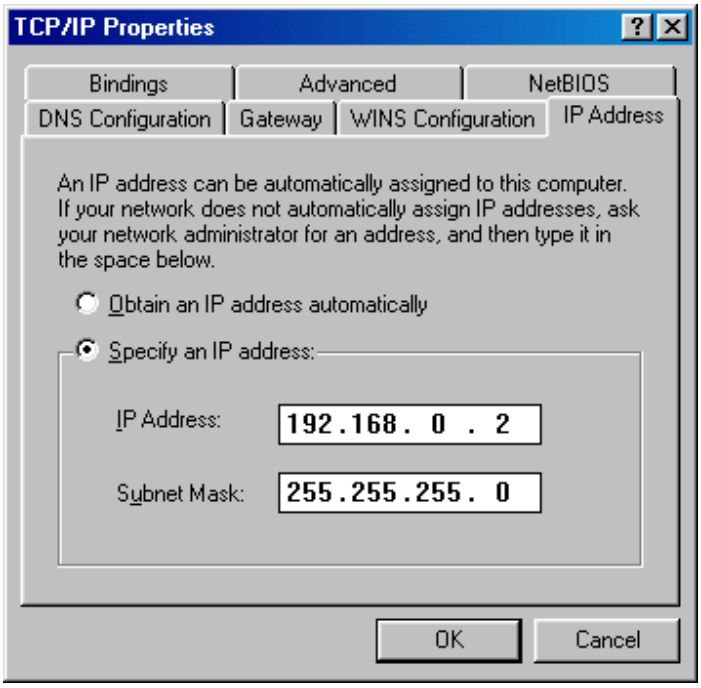
- Type exit to close the command prompt.
- Make sure you take note of your computer´s Default Gateway IP Address. The Default Gateway is the IP Address of the router. By default, it should be 192.168.0.1

3. How can I assign a Static IP Address in Windows 98/Me?

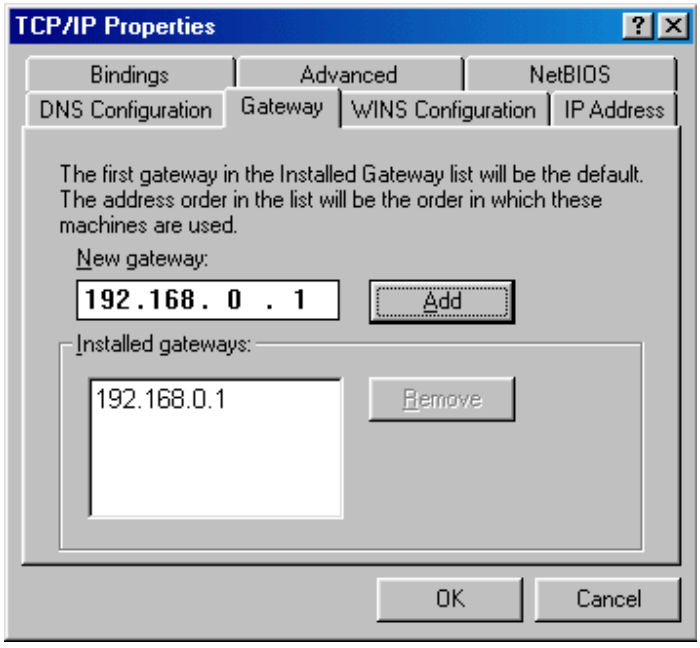
- From the desktop, right-click on the **Network Neighborhood** icon (Win ME - My Network Places) and select **Properties**.
- Highlight **TCP/IP** and click the **Properties** button. If you have more than 1 adapter, then there will be a TCP/IP "Binding" for each adapter. Highlight **TCP/IP > (your network adapter)** and then click **Properties**.



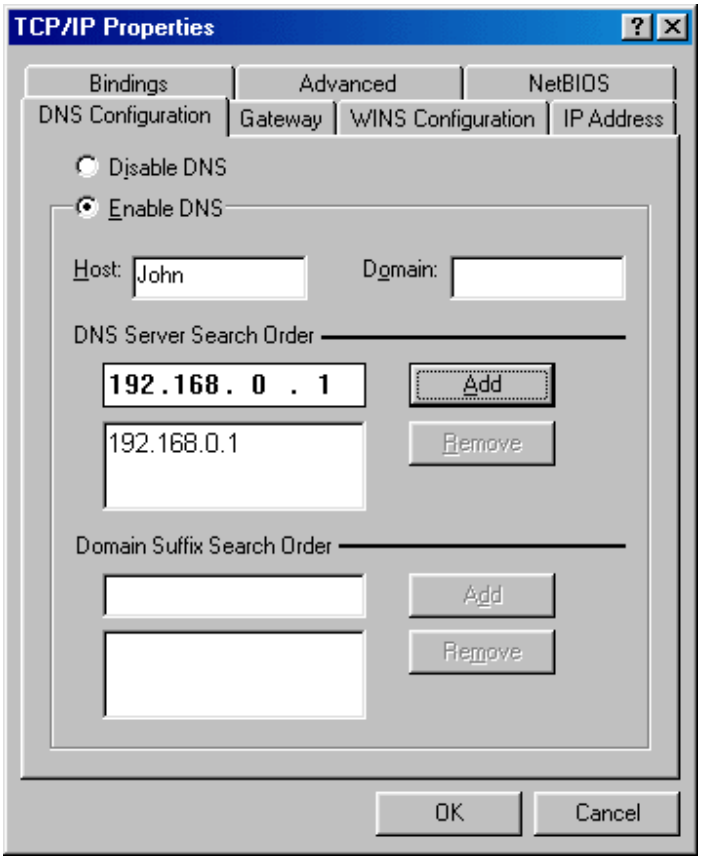
- Click **Specify an IP Address**.
- Enter in an IP Address that is on the same subnet as the LAN IP Address on your router. Example: If the router´s LAN IP Address is 192.168.0.1, make your IP Address 192.168.0.X where X is between 2-99. Make sure that the number you choose is not in use on the network.



- Click on the **Gateway** tab.
- Enter the LAN IP Address of your router here (192.168.0.1).
- Click **Add** when finished.



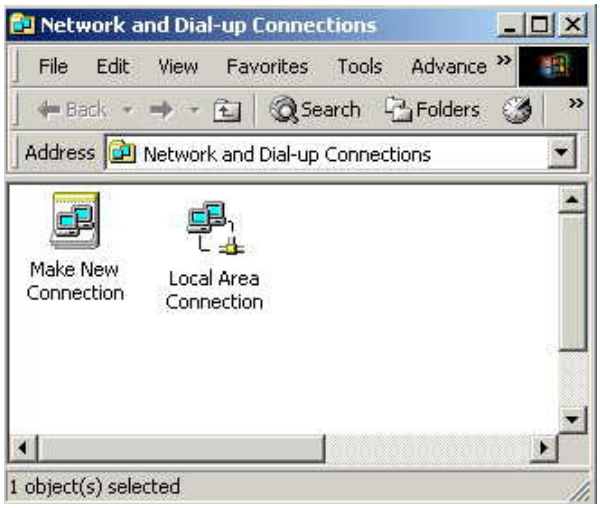
- Click on the **DNS Configuration** tab.
- Click **Enable DNS**. Type in a **Host** (can be any word). Under DNS server search order, enter the LAN IP Address of your router (192.168.0.1). Click **Add**.



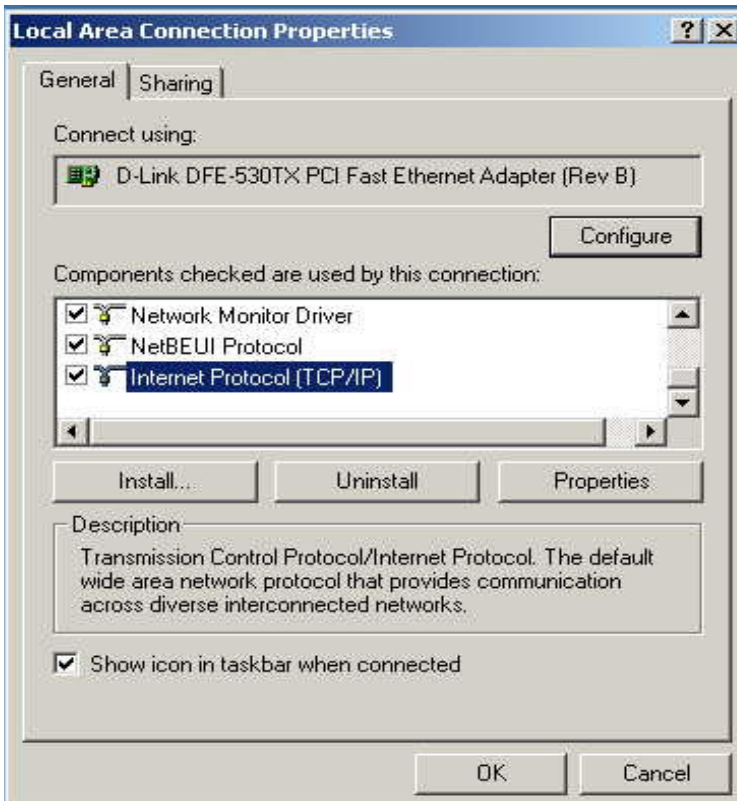
- Click **OK** twice.
- When prompted to reboot your computer, click **Yes**. After you reboot, the computer will now have a static, private IP Address.

4. How can I assign a Static IP Address in Windows 2000?

- Right-click on **My Network Places** and select **Properties**.
- Right-click on the **Local Area Connection** which represents your network card and select **Properties**.



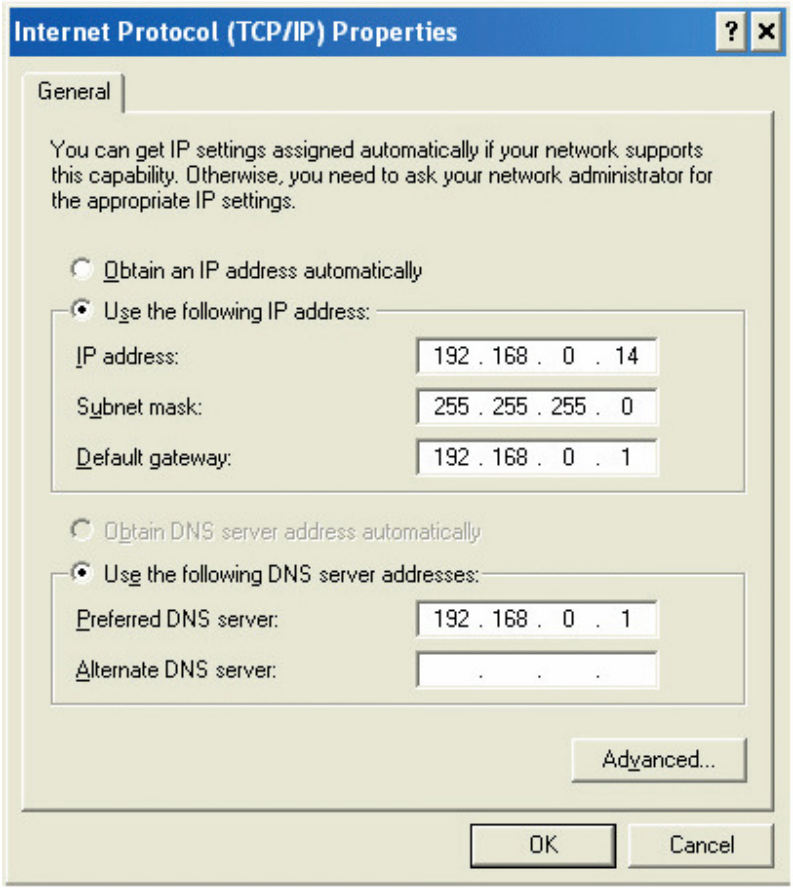
- Highlight **Internet Protocol (TCP/IP)** and click **Properties**.



- Click **Use the following IP Address** and enter an IP Address that is on the same subnet as the LAN IP Address on your router. Example: If the router´s LAN IP Address is 192.168.0.1, make your IP Address 192.168.0.X where X = 2-99. Make sure that the number you choose is not in use on the network.
- Set the **Default Gateway** to be the same as the LAN IP Address of your router (192.168.0.1).
- Set the **Primary DNS** to be the same as the LAN IP address of your router (192.168.0.1).
- **The Secondary DNS** is not needed or enter a DNS server from your ISP.
- Click **OK** twice. You may be asked if you want to reboot your computer. Click **Yes**.

5. How can I assign a Static IP Address in Windows XP?

- Click on **Start > Control Panel > Network and Internet Connections > Network connections**.
- See the steps for assigning a static IP address in Windows 2000 and continue from there.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 0 . 14
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
192 . 168 . 0 . 1
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
192 . 168 . 0 . 1
Alternate DNS server:
Advanced...
OK
Cancel

- Access the Web management. Open your Web browser and enter the IP Address of your router device in the address bar. This should open the login page for the Web management. Follow instructions to login and complete the configuration.

Appendix A Glossary

Address mask

A bit mask used to select bits from an Internet address for subnet addressing. The mask is 32 bits long and selects the network portion of the Internet address and one or more bits of the local portion. Sometimes called subnet mask.

AAL5

ATM Adaptation Layer - This layer maps higher layer user data into ATM cells, making the data suitable for transport through the ATM network.

ADSL

Asymmetric digital subscriber line.

ATM

Asynchronous Transfer Mode - A cell-based data transfer technique in which channel demand determines packet allocation.

ATM offers fast packet technology, real time; demand led switching for efficient use of network resources.

AWG

American Wire Gauge - The measurement of thickness of a wire.

Bridge

A device connects two or more physical networks and forwards packets between them. Bridges can usually be made to filter packets, that is, to forward only certain traffic. Related devices are: repeaters which simply forward electrical signals from one cable to the other, and full-fledged routers which make routing decisions based on several criteria.

Broadband

Characteristic of any network multiplexes independent network carriers onto a single cable. Broadband technology allows several networks to coexist on one single cable; traffic from one network does not interfere with traffic from another. Broadcast A packet delivery system where a copy of a given packet is given to all hosts attached to the network. Example: Ethernet.

CO

Central Office. Refers to equipment located at a Telco or service provider's office.

CPE

Customer Premises Equipment located in a user's premises

DHCP (Dynamic Host Configuration Protocol)

DHCP is software that automatically assigns IP addresses to client stations logging onto a TCP/IP network. DHCP eliminates having to manually assign permanent IP addresses to every device on your network. DHCP software typically runs in servers and is also found in network devices such as Routers.

DMT

Discrete Multi-Tone frequency signal modulation

Downstream rate

The line rate for return messages or data transfers from the network machine to the user's premises machine.

DSLAM

Digital Subscriber Line Access Multiplex

Dynamic IP Addresses

A dynamic IP address is an IP address that is automatically assigned to a client station (computer, printer, etc.) in a TCP/IP network. Dynamic IP addresses are typically assigned by a DHCP server, which can be a computer on the network or another piece of hardware, such as the Router. A dynamic IP address may change every time your computer connects to the network.

Encapsulation

The technique used by layered protocols in which a layer adds header information to the protocol data unit (PDU) from the layer above. As an example, in Internet terminology, a packet would contain a header from the physical layer, followed by a header from the network layer (IP), followed by a header from the transport layer (TCP), followed by the application protocol data.

Ethernet

One of the most common local area network (LAN) wiring schemes, Ethernet has a transmission rate of 10 Mbps.

FTP

File Transfer Protocol. The Internet protocol (and program) used to transfer files between hosts.

Hop count

A measure of distance between two points on the Internet. It is equivalent to the number of gateways that separate the source and destination.

HTML

Hypertext Markup Language - The page-coding language for the World Wide Web.

HTML browser

A browser used to traverse the Internet, such as Netscape or Microsoft Internet Explorer.

http

Hypertext Transfer Protocol - The protocol used to carry world-wide-web (www) traffic between a www browser computer and the www server being accessed.

ICMP

Internet Control Message Protocol - The protocol used to handle errors and control messages at the IP layer. ICMP is actually part of the IP protocol.

Internet address

An IP address is assigned in blocks of numbers to user organizations accessing the Internet. These addresses are established by the United States Department of Defense's Network Information Center. Duplicate addresses can cause major problems on the network, but the NIC trusts organizations to use individual addresses responsibly. Each address is a 32-bit address in the form of x.x.x.x where x is an eight- bit number from 0 to 255. There are three classes: A, B and C, depending on how many computers on the site are likely to be connected.

Internet Protocol (IP)

The network layer protocol for the Internet protocol suite

IP address

The 32-bit address assigned to hosts that want to participate in a TCP/IP Internet.

ISP

Internet service provider - A company allows home and corporate users to connect to the Internet.

MAC

Media Access Control Layer - A sub-layer of the Data Link Layer (Layer 2) of the ISO OSI Model responsible for media control.

MIB

Management Information Base - A collection of objects can be accessed via a network management protocol, such as SNMP and CMIP (Common Management Information Protocol).

NAT

Network Address Translation - A proposal for IP address reuse, where the local IP address is mapped to a globally unique address.

NVT

Network Virtual Terminal

PAP

Password Authentication Protocol

PORT

The abstraction used by Internet transport protocols to distinguish among multiple simultaneous connections to a single destination host.

POTS

Plain Old Telephone Service - This is the term used to describe basic telephone service.

PPP

Point-to-Point-Protocol - The successor to SLIP, PPP provides router-to-router and host-to-network connections over both synchronous and asynchronous circuits.

PPPoE

PPP over Ethernet is a protocol for connecting remote hosts to the Internet over an always-on connection by simulating a dial-up connection.

Remote server

A network computer allows a user to log on to the network from a distant location.

RFC

Request for Comments - Refers to documents published by the Internet Engineering Task Force (IETF) proposing standard protocols and procedures for the Internet. RFCs can be found at www.ietf.org..

Route

The path that network traffic takes from its source to its destination. The route a datagram may follow can include many gateways and many physical networks. In the Internet, each datagram is routed separately.

Router

A system responsible for making decisions about which of several paths network (or Internet) traffic will follow. To do this, it uses a routing protocol to gain information about the network and algorithms to choose the best route based on several criteria known as "routing metrics".

Routing table

Information stored within a router that contains network path and status information. It is used to select the most appropriate route to forward information along.

Routing Information Protocol

Routers periodically exchange information with one another so that they can determine minimum distance paths between sources and destinations.

SNMP

Simple Network Management Protocol - The network management protocol of choice for TCP/IP-based Internet.

SOCKET

(1) The Berkeley UNIX mechanism for creating a virtual connection between processes.
(2) IBM term for software interfaces that allow two UNIX application programs to talk via TCP/IP protocols.

Spanning-Tree Bridge Protocol (STP)

Spanning-Tree Bridge Protocol (STP) - Part of an IEEE standard. A mechanism for detecting and preventing loops from occurring in a multi-bridged environment. When three or more LAN's segments are connected via bridges, a loop can occur. Because a bridge forwards all packets that are not recognized as being local, some packets can circulate for long periods of time, eventually degrading system performance. This algorithm ensures only one path connects any pair of stations, selecting one bridge as the 'root' bridge, with the highest priority one as identifier, from which all paths should radiate.

Spoofing

A method of fooling network end stations into believing that keep alive signals have come from and returned to the host. Polls are received and returned locally at either end

Static IP Addresses

A static IP address is an IP address permanently assigned to computer in a TCP/IP network. Static IP addresses are usually assigned to networked devices that are consistently accessed by multiple users, such as Server PCs, or printers. If you are using your Router to share your cable or DSL Internet connection, contact your ISP to see if they have assigned your home a static IP address. You will need that address during your Router's configuration.

Subnet

For routing purposes, IP networks can be divided into logical subnets by using a subnet mask. Values below those of the mask are valid addresses on the subnet.

TCP

Transmission Control Protocol - The major transport protocol in the Internet suite of protocols provides reliable, connection-oriented full-duplex streams.

TFTP

Trivial File Transfer Protocol - A simple file transfer protocol (a simplified version of FTP) that is often used to boot diskless workstations and other network devices such as routers over a network (typically a LAN).

Telnet

The virtual terminal protocol in the Internet suite of protocols - Allows users of one host to log into a remote host and act as normal terminal users of that host.

Transparent bridging

So named because the intelligence necessary to make relaying decisions exists in the bridge itself and is thus transparent to the communicating workstations. It involves frame forwarding, learning workstation addresses and ensuring no topology loops exist (in conjunction with the Spanning-Tree algorithm).

UDP

User Datagram Protocol - A connectionless transport protocol that runs on top of TCP/IP's IP. UDP, like TCP, uses IP for delivery; however, unlike TCP, UDP provides for exchange of datagrams without acknowledgments or guaranteed delivery. Best suited for small, independent requests, such as requesting a MIB value from an SNMP agent, in which first setting up a connection would take more time than sending the data.

UNI signaling

User Network Interface signaling for ATM communications.

Virtual Connection (VC)

A link that seems and behaves like a dedicated point-to-point line or a system that delivers packets in sequence, as happens on an actual point-to-point network. In reality, the data is delivered across a network via the most appropriate route. The sending and receiving devices do not have to be aware of the options and the route is chosen only when a message is sent. There is no pre-arrangement, so each virtual connection exists only for the duration of that one transmission.

WAN

Wide area network - A data communications network that spans any distance and is usually provided by a public carrier (such as a telephone company or service provider).

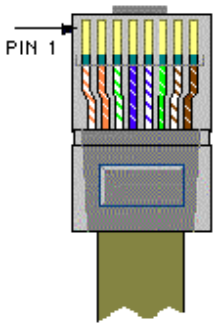
Appendix B Cabling / Connection

Network cables connect PCs in an Ethernet network Category 5, called "Cat5" for short is commonly used type of network cable today.

Cat 5 cables are tipped with RJ-45 connectors, which fit into RJ-45 port.

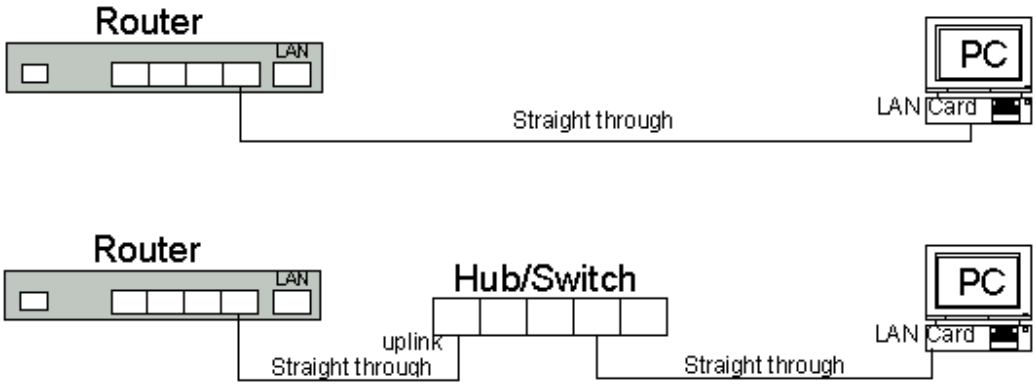
Straight-through vs. Crossover Cables:

Straight-through	
Wire	Becomes
1	1
2	2
3	3
6	6



Straight-through	
Wire	Becomes
1	1
2	2
3	3
6	6

LAN Connection:



To check LEDs light up when you finish connecting two pieces of hardware.

Declaration of Conformity

The following

Equipment: ADSL2+ Wireless 11n Router

Report No.: S940111 is herewith confirmed to comply with the requirements set out in the Council Directive on the harmonization of the Laws of the Member States relating to electrical equipment designed for use within certain voltage limits (73/23/EEC).

For the evaluation of above mentioned Directives, the following standards were applied: EN 60950-1: 2001

Declaration of Conformity

The following

Equipment: ADSL2+ Wireless 11n Router

is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility(89/336/EEC) (1999/5//EC).

For the evaluation of above mentioned Directives, the following standards were applied:

ETSI EN 301 489-17: V1.2.1 (2002-08)

Declaration of Conformity for CE Marking

The following

Equipment: ADSL2+ Wireless 11n Router

is herewith confirmed to comply with the requirements of its Harmonised Standards for CE Marking which have been set out in the Council Directive, and published as below:

1) The EMC Directives of 89/336/EEC, 92/31/EEC and 93/68/EEC;

2) The R&TTE Directive 1999/5/EC

For the evaluation of above mentioned Harmonised Standards, the following technical and test standards were applied:

ETSI EN 300328-1 : 2001

Testing Laboratory:

PEP TECHNOLOGIES LTD.

12FL-3, NO.27-1, LANE 169, KANG NING ST., HSI CHIH CITY, TAIPEI HSIEN, TAIWAN, R.O.C.